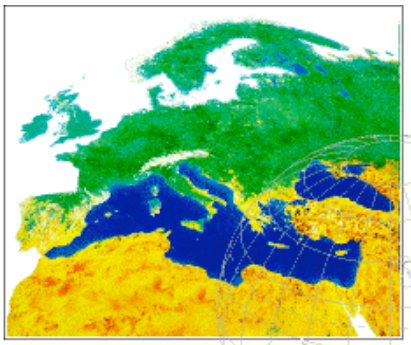
Friends of the Earth Middle East



Euro-Mediterranean Free Trade Zone

Implications for Sustainability

Case Studies, Assessments and Recommendations

The full report is available on-line at *http://www.foeme.org/mftz/report.htm*

Environmental Impacts of a Euro-Mediterranean Free Trade Zone: *Case Studies and Assessments*

This research publication is part of **Friends of the Earth-Middle East's (FoEME) Mediterranean Free Trade Zone (MFTZ) Environment Watch Project** to build a broad network of organizations and individuals to monitor the environmental and social implications of the Euro-Mediterranean Partnership.

The research was coordinated by Friends of the Earth-Middle East and was undertaken by researchers from

- Friends of the Earth-Middle East,
- EcoCon (Egypt),
- The Jordanian Society for Sustainable Development (JSSD),
- Life and Environment (Israel), and
- The Palestinian Agricultural Relief Committees (PARC).

The views expressed reflect those of the individual authors and/or organisations, and do not necessarily reflect those of Friends of the Earth-Middle East.

FoEME is thankful to all those who offered comments and input to draft versions of this report. Additional comments regarding this study can be sent by email to: mftz@foeme.org

Chief Editor: David Katz
Friends of the Earth Middle East
July, 2000

Friends of the Earth-Middle East (FoEME), is a unique umbrella organisation representing leading Middle East environmental non-governmental organisations. FoEME's primary objective is the promotion of cooperative efforts to protect shared environmental heritage, and in so doing, to help achieve both sustainable regional development and the creation of necessary conditions for lasting peace in our region.

FoEME is a member of Friends of the Earth International (FoEI), the world's largest network of environmental organisations, operating across the globe.

This project is part of FoEI's Trade, Environment, and Sustainability (TES) programme. FoEME is also active member of Friends of the Earth's MedNet network, a network of FoE organisations from throughout the Mediterranean region.

This publication was made possible by support from the Middle East Regional Cooperation (MERC) Program of USAID. Additional support for this project was also given by FoEI's Trade, Environment, and Sustainability programme and the CS Mott Foundation.

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Environmental Impacts of a Euro-Mediterranean Free Trade Zone: *Case Studies and Assessments*

Table of Contents

EXECUTIVE SUMMARY

THE EURO-MEDITERRANEAN FREE TRADE ZONE

The Euro-Mediterranean Partnership (EMP) is a regional policy framework involving the countries of the European Union and twelve non-EU countries from the Mediterranean region. The driving element of the Partnership is a trade liberalisation process which is to be implemented in stages and is expected to culminate in the establishment of a regional free trade zone (FTZ) by 2010. Due to the dominance of the EU market in the non-EU Mediterranean Partner Countries (MPCs), the Euro-Med trade programme is likely to have significant impact on the economic structure of MPC economies. The purpose of this study is to assess potential environmental impacts of the EMP, by examining experiences in other free trade zones and by analysing case studies on sectors of economic, social and environmental importance in MPCs.

The Euro-Med economic programme involves the removal of trade barriers on manufactured goods coming from anywhere in the Euro-Med region. As the EU already provides duty free access to most MPC manufactured goods, the core of the Euro-Med trade initiative is the opening of the economies of the MPCs. In addition to removal of customs duties, the Euro-Med supports broader Structural Adjustment Programmes (SAPs) in the hope of better integrating MPC into the global economy. While the EU will clearly gain from such a process in terms of gaining easier access to Mediterranean markets, the incentive for the MPCs is the opportunity to attract European investment and technology, as well as increased direct financial assistance.

LESSONS FROM OTHER TRADE AGREEMENTS

Other free trade zones such as the EU itself or the North American Free Trade Agreement (NAFTA), indicate that trade liberalisation can have substantial environmental implications, especially among the less economically developed trade partners. Expansion of industrial activity and intensification of agriculture usually result as these economies receive foreign investment and become more export oriented. These generally lead to overall increases in resource consumption and pollution rates for the less developed partners. For many of the MPCs, which are already exploiting their limited natural resource bases at or beyond sustainable rates (e.g. for water), such an expansion could cause irreversible damage.

Both the EU and NAFTA are believed to have caused sharp rises in transportation and related pollution, as goods are now transported longer distances. For the Mediterranean region, this will likely mean increased pressure on ecologically sensitive coastal areas and the marine environment. Trade liberalisation agreements are also considered to accelerate trends of urbanisation, which would mean further pressures on already burdened urban environments in the Euro-Med region. Reduction of customs on foreign goods leads to rises in consumption of consumer goods and resulting increases in resource consumption and packaging waste. Infrastructure in MPC countries is insufficient. Removal of customs also means a reduction in funds available to governments to address environmental and social issues. Thus, a nation's capacity and willingness to address environmental issues decreases exactly at a time when pressures are on the increase.

Increased efficiency rates may result due to availability of better technology and removal of wasteful subsidies under SAPs, although overall environmental impacts may continue to increase, and social impacts will need to be addressed. Environmental niche markets may offer potential gains for both trade and environment, however, promotion of such win-win situations can only occur with active promotion of strong supporting institutions and policies backed with sufficient authority and finances. In contrast to the EU institutions, and even those set up under NAFTA, the Euro-Med Partnership currently lacks any coordinating institution capable of integrating sustainability concerns within Euro-Med programmes.

THE TEXTILE SECTOR IN EGYPT

Textiles are Egypt's leading non-oil export and an important source of employment. While textile quotas are being phased out under a World Trade Organisation agreement, it is believed that non-tariff barriers will remain an important issue. Based on current EU-MPC association agreements, the Euro-Med process is likely to impact the sector through higher investment and increased possibility of penetrating the EU market.

Equipment used in the textile sector in Egypt is old and inefficient. Prices of inputs such as water and electricity do not reflect environmental costs and so are used wastefully. Major environmental impacts of the sector include wastewater effluent and air pollution. Expansion of the industry will presumably lead to increased resource consumption and pollution, given current pricing and regulatory structures. The possibility that producers could benefit from environmental market niches provided by eco-labels or environmental management systems such as ISO 14000 seems unlikely. Most of the producers in the sector are small or medium sized enterprises which lack the financial capital and the knowledge about technical specifications which is necessary in order to take advantage of such opportunities. Indeed, in surveys conducted, they tended to see environmental issues as potential market barriers.

Euro-Med sponsored programmes to promote modernisation of industry could play a potentially beneficial role if they incorporate assistance directed at improving environmental performance into their activities. Such programmes could include collection and dissemination of information regarding environmental standards, technologies, and certification schemes, as well as development of funds to enable small-scale producers to act on such information.

THE PHOSPHATE SECTOR IN JORDAN

The phosphate industry is a major source of foreign currency and employment in Jordan. Mining and mineral processing however, have serious and in some cases irreversible impacts on the environment and on the well-being of the local populations. The sector already extracts water beyond sustainable limits and is one of the country's highest industrial consumers of energy consumption. Air and water degradation due to mining, transport, and processing already negatively affects local human and wildlife populations.

Jordan is planning to expand the amount of phosphate mined by up to 67% over the coming decade and to rapidly develop its fertiliser and chemical production capacity in order to expand into new higher value-added product markets. The industry is seeking investment and joint ventures in order to gain technologies and market contacts. The Euro-Med Partnership is contributing directly to the current expansion of the sector in Jordan, both by means of direct finance (e.g. several European Investment Bank loans) and by facilitating new joint ventures between EU and Jordanian firms. Indeed, mining has been Jordan's biggest Euro-Med benefactor. Jordan's high quality phosphate should give it a comparative cost advantage in meeting high EU environmental standards, which may be a reason for EU interest in investing in the sector.

Events in Jordan's mining sector seem to confirm claims that free trade and structural adjustment programmes tend to spur expansion in highly polluting extractive industries in developing countries. Given the current lack of internalisation of environmental costs for producers in Jordan (both in terms of consumption and emissions) and relatively weak enforcement of environmental regulation, the planned expansion of production is likely to exacerbate current negative environmental impacts, especially in terms of exploitation of scare water resources and energy consumption. Recommended mitigation measures include region wide research and development into methods of reducing resource consumption for the sector, development of monitoring systems at the industrial level, and increased investment at the sectoral level for pollution prevention and mitigation and for environmental rehabilitation.

AGRICULTURE IN THE SOUTH-EAST MEDITERRANEAN

Agriculture is an important sector socially and economically for several southeast Mediterranean countries, employing large segments of the population, and generating much needed foreign currency. The region is characterised by limited amounts of water and arable land, and a very short rainy season, all of which largely determine the nature and extent of the region's agricultural production. In terms of environmental impact it is the primary consumer of the region's limited water resources. Fertiliser and pesticide use, which contaminate soil and water sources, are widespread due to the region's naturally low soil productivity and to price supports in some of the countries. Cultivation of cash crops for export tends to be much more resource intensive and polluting than does production for local consumption.

The Euro-Mediterranean Partnership's trade liberalisation programme calls for progressive liberalisation of agricultural trade in the region, although stopping short of calling for completely free trade as it does in the

case of manufactured goods. This is largely due to the EU's protective Common Agricultural Policy. In association agreements between the EU and southeastern Mediterranean countries, areas in which the EU granted trade concessions have largely been restricted to early (usually winter) crops of fruits and vegetables which do not compete with production within the EU. Such limitations do not necessarily correspond to the natural peak production for these countries. Thus, in order to capitalise on the lucrative EU market opportunities many farmers are forced to choose crops that are not appropriate to the region and which demand intensive applications of inputs, e.g. water and agro-chemicals, and/or to farm on marginal lands.

The Barcelona Declaration of 1995, which established the Euro-Mediterranean Partnership, calls for promotion of environmentally-friendly agriculture. Actual activities promoting such an objective, however, were not apparent in the countries studied. While the EU market for organic agriculture is growing rapidly, for instance, relatively few farmers are able to take advantage of it due to: relatively limited export opportunities overall for agricultural goods, a high level of information needed regarding standards and market contacts, high up-front costs needed for certification, and a lack of necessary infrastructure. In order to genuinely promote such a goal, association agreements could be expanded to offer special concessions for sustainable agricultural production, programmes could be developed to develop networks for dissemination of information on environmental market opportunities, and price supports for agricultural inputs could be removed or restructured so as to be tied to sustainable production.

ENVIRONMENTAL LAW IN THE EURO-MED REGION

While the Euro-Med trade programme is promoting harmonisation of trade regulation and other economic policies within the region, large legal gaps between Euro-Med partners remain in the field of environmental legislation, as well as in areas such as public access to information, which are crucial to proper environmental monitoring. In general, the European Union far outpaces its MPC neighbours in terms of the comprehensiveness and stringency of its regulatory system vis-à-vis environmental protection. Furthermore, while the EU has a supra-national regulatory structure, in the form of EU-level directives and regulations which address transboundary issues, the MPCs studied tend to lack such mechanisms.

The legal frameworks dealing with the environment differ widely among MPCs. A common characteristic, however, is a duplication of responsibilities among government bodies responsible for the same environmental issues. This results in bureaucratic slow-downs and in environmental issues being neglected completely. In addition, often in MPCs, even when framework legislation exists, the necessary by-laws, standards, and supporting agencies necessary for enforcement of the laws do not. Moreover, due to inadequate capacity, little public pressure, and a lack of political will, enforcement of environmental legislation in MPCs tends to be weak. Under the Euro-Med's trade programme, this lack of basic environmental regulation could result in rampant economic development in MPCs, without proper planning such as environmental impact assessments (EIAs) and pollution prevention initiatives, and without channels for public scrutiny of the development process. Furthermore, the wide legal gaps between the EU and MPCs could provide the legal conditions necessary for accelerated development of highly polluting industries in MPCs and even possibly the relocation of such industries from the EU to MPCs.

In order to close these legal gaps it will be necessary to upgrade the legal regime of each MPC. Support is also necessary to develop capacity among the bodies responsible for enforcement. A common environmental legal mechanism is one option for doing so in a consistent manner. Such a mechanism could be administered through an Euro-Med institution responsible for the environment or possibly within the framework of the Barcelona Convention and the Mediterranean Action Plan. One possible basis for a unified environmental legal mechanism could be a common Euro-Med framework for environmental damage liability.

RECOMMENDATIONS

The Euro-Mediterranean Partnership's current economic liberalisation programme is likely to contribute to environmental degradation in the MPCs, especially in the short and medium term. During the first four years of the Partnership, relatively little has been done to anticipate the environmental stress likely to be caused by the trade policies. Euro-Med programmes which are responsible for addressing environmental

concerns have been slow, overly bureaucratic and ineffective. If the Euro-Med Partnership is to live up to its stated goal of creating "a zone of shared prosperity," based on sound, sustainable development, a rethinking and reordering of priorities needs to be undertaken immediately.

In order to avoid or to mitigate some of the environmental pressures anticipated to result from the Euro-Mediterranean Partnership's trade policy and to actively promote potential environmental opportunities opened by the Partnership, the following measures are recommended:

- ***Incorporation of Environment in Bilateral and Regional Agreements***. As most of the impacts of the Euro-Med economic policy will result from the EU non-EU relations, it is essential that environmental concerns be considered in the negotiation and implementation of the EU-MPC bilateral association agreements, as well as at the regional level.
- ***Specific Targets***. As it does for its trade programme, Euro-Med agreements and policies should designate specific sustainability targets, with reasonable schedules and finances necessary for achieving them. These targets should be included in Euro-Med trade agreements, in the various sectoral fora, and in development of funding allocations.
- ***Institutional Coordination.*** A strong institution within the Euro-Med Partnership is needed to coordinate environmental programmes and policies and ensure that sustainability concerns are well integrated into overall Euro-Med policy initiatives.
- ***Sustainability Impact Assessments***. An officially sponsored sustainability assessment should be carried out immediately on the planned regional free trade zone and its recommendations incorporated into Euro-Med policies. Assessments of the bilateral agreements should also be undertaken and data shared among partner countries.
- ***Environmental Screening of Official Euro-Med Finance.*** All significant financing undertaken within the framework of Euro-Med institutions (e.g. MEDA and EIB), or between Euro-Med governments (e.g. via export credit agencies) should undergo sustainability screening, especially that promoting industrial and/or infrastructure expansion. In cases in which projects receive funding despite limited environmental damage, matching funds should be made available for necessary mitigation and/or compensation measures.
- ***Capacity Building***. Programmes to develop technical and professional capacity both at the private sector and governmental levels, need to be implemented in order to identify and address trade-environment issues and to facilitate exploitation of environmental opportunities within the Euro-Med system.
- ***Internalisation of Environmental Costs.*** Policies to incorporate environmental impacts into pricing should be encouraged, including eco-taxes and the removal or reduction of wasteful subsidies and other price supports for water and electricity. Such policies both remove market distortions and improve natural resource conservation and pollution prevention. As these price supports are often important for poorer segments of the population, alternative policies need to be in place to assure provision of basic needs. Work on developing such a restructuring of policies should be incorporated into MEDA funding for structural adjustment.
- ***Debt Restructuring.*** Debt forgiveness or restructuring by EU creditor nations, especially in the form of debt-for-nature swaps, could relieve alleviate the fiscal strain on MPC government revenues, which currently constrains governments from implementing necessary projects.
- ***Sustainability Indicators***. A system of national and regional indicators reflecting progress in terms of sustainability which is specific to issues raised by trade liberalisation should be monitored, so that member countries can evaluate and respond to social and environmental impacts.
- ***Multi-stakeholder Participation***. Incorporation of multiple stakeholders into the Euro-Med decision-making process should be developed and integrated throughout the various levels of Euro-Med policies and activities. Currently, efforts towards significant non-governmental participation are being developed primarily with the private sector. Participation by civil society and by local populations affected by Euro-Med policies should be developed beyond its current, largely, token levels.
- ***Priority Action***. Given the substantial on-going progress in liberalising trade, within the Euro-Med Partnership, and given that certain general trends in terms of environmental impact are evident or extremely likely, immediate action should be taken to prepare and implement basic measures to ensure environmental protection. Lack of official studies or accurate data is a serious gap in promoting, effective policies, however, they should not be an excuse for inaction.

THE EURO-MEDITERRANEAN FREE TRADE PROGRAMME:
CASE STUDIES AND ASSESSMENT OF ENVIRONMENTAL IMPACTS

1. INTRODUCTION

In 1995, leaders of 27 governments, as well as the European Union, came together in official support of a joint policy initiative to increase the political, economic, and cultural ties between countries on both sides of the Mediterranean Sea. This 'Euro-Mediterranean Partnership', as it is called, includes Algeria, Cyprus, Egypt, Israel, Jordan, Lebanon, Malta, Morocco, the Palestinian Authority, Syria, Tunisia, and Turkey, as well as all 15 member states of the European Union (EU). According to the Barcelona Declaration, the document signed by the Foreign Ministers of each partner country, which officially initiated the Partnership in 1995, the Partnership's main goals are:

1. A definition of a common area of peace and stability through a reinforcement of political dialogue and security.
2. A construction of a zone of "shared prosperity" and the gradual establishment of the region as a free trade zone, to be functional by the year 2010.
3. A rapprochement between peoples through a social, cultural and human partnership.

Based on the resources dedicated and official activities undertaken under the Euro-Med banner, the economic programme with its focus on creating a regional Euro-Med free trade zone[1] is clearly the top priority among the three issue areas, and its implementation is likely to have significant impacts upon the other two, as well as on the social and environmental fabric of the region. The economic programme will effect the economies of the region in several ways, including through:

- Bilateral association agreements between the EU and southern Mediterranean partner countries (MPCs) which have been negotiated or are being negotiated during the interim period until the establishment of the regional free trade agreement.
- Structural adjustment programmes in the MPCs including introduction of value-added tax systems, investment protocols, harmonisation of standards, etc.
- Possible changes in rules of origin which would allow for increased South-South cooperation in joint production of goods to be traded within the region.
- Elimination of customs duties on all manufactured goods traded within the region by 2010. (In essence this means the opening up of the markets of the MPCs, as they already have preferential (duty-free) access to the EU for most manufactured goods.)
- Limited liberalisation of agriculture and services, which represent large shares of the economies of several of the MPCs. The extents of liberalisation in these sectors is still under negotiation.

In addition to the tangible changes in economic policy, the Euro-Med Partnership has been allocating, both through its Mediterranean aid (MEDA) programme and through European Investment Bank (EIB) loans, substantial sums for technical support for economic transition, infrastructure projects, and various political and social programmes. In addition, new investment flows to MPCs are also expected due to a more solid and predictable region-wide financial framework.

While the southern Mediterranean region represents only a very minor share of the EU's economy, the EU accounts for roughly half of the total trade of the MPCs, and in specific cases nearly 70%. Such an uneven relationship naturally favours the hand of the stronger partner – the EU – in terms of negotiations. It also means that the MPCs have to compete against other regions and EU-trade partners for favorable treatment and for limited resources.

Due to the high economic dependence of MPCs on the EU, the Euro-Med's trade liberalisation programme will most certainly have a profound impact on the economies and the lifestyles of those living in the MPCs, effecting both production and consumption, as well as institutional roles and capacities. Clearly these

[1] The terms Euro-Med free trade zone or Mediterranean Free Trade Zone (MFTZ) are used interchangeably within this document to refer to the proposed regional free trade area.

changes will have direct and indirect social and environmental impacts. Some of the most obvious social impacts, such as effects on unemployment and aggravation of poverty have begun to be investigated, and research bodies have begun to propose various measures for achieving a balance between economic development and social stability. The associated impacts of the Euro-Med Partnership on the environment and long-term sustainable development, however, have remained largely unaddressed. For a region such as the southern Mediterranean which already suffers from chronic water shortages, very limited arable land, and population rates among the highest in the world, a better understanding of environmental impacts of regional economic policies such as the Euro-Med trade programme is crucial for regional stability and sustainability.

2. PURPOSE OF THE REPORT

At the Rio Earth Summit of 1992, the countries of the world committed to considering environmental issues when developing other policies, including trade policies. While clear objectives stated in the Barcelona Declaration to respect the region's natural environment and promote sustainable development, relatively little in terms of research and programming concerning these issues has been carried out within the Euro-Med framework. This report attempts to be a first step in addressing this gap. It is the culmination of a joint research project undertaken by Friends of the Earth-Middle East (FoEME) and partner organisations in Egypt, Israel, Jordan, and Palestine to investigate possible implications of the Euro-Med programme to establish a free trade area. The aim of the study, and of the project in general, is to contribute to a better understanding of the predicted environmental impacts, and, in light of these findings, to suggest policy recommendations for promoting sustainable development in the region.

3. SCOPE OF THE REPORT

Due to the vast range of possible impacts across a large number of countries, the research presented herein does not attempt to be a comprehensive assessment, but rather, a brief cross-section of various relevant sectors and policy issues, which together give an insight into some of the most significant issues at stake. The report consists of five separate case studies:

- Lessons from other Trade Agreements – conducted by Friends of the Earth-Middle East (Jerusalem/Amman)
- The Textile Sector in Egypt – conducted by Eco-Con (Cairo)
- The Agricultural Sector in the Levant – conducted by the Palestinian Agricultural Relief Committees-PARC (Ramallah)
- Jordan's Phosphate and Phosphate Fertiliser sector – conducted by the Jordan Society for Sustainable Development (Amman)
- A Comparative Analysis of Environmental Legislation in the Euro-Med Region – conducted by Life & Environment (Tel Aviv)

The first study presents several of the over-arching issues at stake, with analysis of how they have been addressed (or not addressed) in other trade agreements, and their relevance to the Euro-Med region. The next three studies are case studies of specific economic sectors in the southern Mediterranean which were selected because of their economic and social significance to the country/countries being examined and because of their substantial environmental impacts. Although these studies are limited in their geographical scope, sectors were chosen which are of importance to several of the Euro-Mediterranean partner countries. In these studies focus was placed largely on impacts of production, rather than on transportation, use, and disposal of the goods. While life-cycle-analysis using a cradle-to-grave approach would have been preferable, limits of time, resources, and capacity necessitated more modest assessments. Thus, assessments of environmental impact in these studies may in fact be underestimated. The final study presents a brief comparative evaluation of the adequacy of legal structures in currently place in the EU and in Egypt, Israel and Jordan in providing environmental protection under a regional free trade regime.

Analysis was not limited to the impacts of the eventual establishment of a regional free trade area, although this was a focal point for much of the evaluation. Rather, it was extended to the over-arching economic liberalisation process being promoted within the Euro-Med framework. This extended scope was chosen

due to the significant impacts which are likely to result from the bilateral association agreements and other processes outlined above already being implemented, which are likely to have environmental impacts which far outweigh those of an eventual regional agreement.

The collective study is by no means an attempt to be a broad sustainability assessment. Rather, it largely limits its focus to environmental implications and to social impacts which are closely related to natural resource management. While wider social considerations should be an integral part of a comprehensive assessment, due to limits of resources and capacity, the current project should be viewed only as a contribution to what is clearly a much larger need. In this respect, even as an environmental assessment, it must be stated that this work is intended as a first step in a process of review and analysis of an extremely complex and sensitive issue. The authors hope that the findings will indicate the importance of further study and, more importantly the urgent need for broad-based policy measures within the Euro-Med Partnership to ensure regional sustainability.

4. METHODOLOGIES OF THE STUDIES

The studies were conducted independently of one another, and each of the researchers were allowed to develop their own methodology according to their own assessment of the specific needs of their individual study. Thus, the methodologies vary. Industry interviews, extrapolation and regression analysis of primary macro and micro-level economic data, and use of empirical data from secondary sources were employed. The overarching principle guiding all of the studies was the Euro-Med's impact on the sustainable development of the areas being studied. Sustainable development was defined generally as living within the limits of natural ecological systems of which we are part, in a manner which best meets the needs of the current generation without compromising the ability of future generations to meet theirs.

While the studies attempt to be as objective as possible, they have an undeniable normative element, especially in terms of policy suggestions. In addition, they also make occasional use of the concept of "environmental space," which centers around notions of "fair" access to natural resources as well as fairness in paying environmental costs. These are inherently subjective matters, but ones for which clear criteria is generally presented (e.g. the polluter pays principle, etc.). The present studies offer limited cost-benefit analysis. Rather, they concentrate primarily on projecting only the environmental impacts and some environment-related social consequences, in the hope that this can serve as a basis against which policy-makers can evaluate other perceived economic or social impacts which have been studied elsewhere.

5. METHODOLOGICAL OBSTACLES

As with many studies on trade agreements, there is a tremendous difficulty in distinguishing between economic trends which result from the trade agreements in question and those which would have occurred irrespective of the agreements due to other similar trade liberalisation initiatives or simply due to economic growth patterns. In the case of the Euro-Med countries, most countries are either members or candidates for membership in the World Trade Organisation (WTO), and thus, many are undergoing similar economic reform and trade liberalisation programmes (e.g. reduction of trade barriers and harmonisation of standards) according to commitments under the WTO. Furthermore, several of the MPCs have implemented or are in the process of implementing structural adjustment programmes, such as those mandated by the International Monetary Fund, which largely overlap with the economic reform programmes of the Euro-Med. Indeed, the Euro-Med Partnership specifically calls for strengthening of such complementary policies, thus blurring distinctions between it and other programmes.

Another obstacle was lack of accurate, compatible and up-to-date data – both economic and, even more so, environmental – either because the data is not known or because it is not openly accessible. In order to accurately predict environmental impacts of the Euro-Med trade policy, it would be necessary to have accurate predications of the expected economic changes. Unfortunately, because of the problems just mentioned, much of the economic studies conducted regarding the Euro-Med have either been very general or are based on relatively speculative modeling or even theoretical guess-work. Furthermore, time-series data of environmental indicators was largely lacking or incomplete. Under such circumstances, identifying

specific environmental impacts of the Euro-Med free trade programme has been problematic and it was often necessary simply to address general trends to which the Euro-Med Partnership seems to be contributing, relying on experience from the Partnership's first four years, as well as on similar experiences from other parts of the world.

Despite methodological obstacles, certain trends do appear clear and it is the hope of these authors that the research findings provided herein are of use to policy makers in realising and addressing the issues at stake in order that the Euro-Mediterranean Partnership be able to fulfill its stated ambition of creating a "shared zone of prosperity."

The Euro-Mediterranean Free Trade Zone and the Environment
Issues and Evidence: Lessons from other Trade Agreements

By David Katz, Friends of the Earth-Middle East

1. INTRODUCTION

Over the past two decades, the world has witnessed a proliferation of regional trade arrangements. This work aims to explore experiences from some such agreements, as well as from other relevant economic liberalisation programmes, in order to better understand the issues at play in the context of the proposed Free Trade Zone (FTZ) called for under the Euro-Mediterranean Partnership.

2. METHODOLOGY

This study makes use of the following categorical distinctions in terms of environmental impacts of trade liberalisation:

- *Scale* – changes in the amount of resources consumed and/or products or pollution produced;
- *Composition* – shifts in terms of which economic sectors are active;
- *Technique* – changes in production methods and technologies used;
- *Regulation* – both regulatory attempts at addressing trade-environment issues, as well as the impact trade agreements can have on regulation itself;
- *Institutional Responses* – which institutions are established and/or designated responsibility for addressing the trade-environment dynamic.[2]

The study analyses experiences from other trade agreements according to the categories outlined above to see if and how they have affected these elements of sustainable regional development. Central to this concept is the need for countries to respect the carrying capacities of their natural physical environment. As most of the expected impacts are in the southern Mediterranean partner countries (MPCs), the study focuses primarily on these nations. Efforts were made to examine impacts at a sub-national level, as well, since severe local impacts may not necessarily effect national-level indicators.

Throughout the study reference is made primarily to two other FTZs which are of particular relevance to the case of the Euro-Med, the European Union (especially the Single European Market of 1992) and the North American Free Trade Agreement (NAFTA), which went into effect in 1993. The EU is of obvious relevance in that it is itself one half of the Euro-Med Partnership, while NAFTA is the first major free trade agreement (FTA) to incorporate both industrialised and developing economies. There are, however, also several differences between the aforementioned FTAs and the Euro-Med FTZ which need to be kept in mind. The EU is much more than an FTA; it is an instance of comprehensive political and economic regional integration. It also deals exclusively with nations of relatively high economic development. In the case of NAFTA, because it involves only one developing country, the environmental issues possible methods of addressing these are more focused than in the Euro-Med case.

Other trade arrangements are referred to periodically when relevant. The Asian Pacific Economic Cooperation (APEC) policy forum, for instance, is similar to the Euro-Med in that it is a broad policy forum of both developing and industrialised nations, however, since it is still too early to see any definitive tangible impacts, reference is made to APEC only in terms of its regulatory and institutional measures.

3. SCALE

3.1. Economic Development and Environmental Protection

Perhaps the primary issues at stake is how economic development, which the Euro-Med's trade liberalisation programme is supposed to facilitate, impacts the environment. Several researchers have attempted to see if a linear relationship exists whereby increased economic activity results in increased consumption of resources and increased pollution, or if, on the contrary, economic development leads to better technologies and

[2] The categorisation follows similar frameworks used elsewhere, such as by the OECD, the World Bank, and others.

demands for higher levels of protection thereby reducing environmental pressures. While such generalisations clearly over-simplify the issues, since economic liberalisation is proposed as a remedy for environmental crises by several international institutions dealing with the region, the question is worth examining at least briefly.

Some seminal studies which examined the relationship between economic development and air pollution found that the output of pollutants per dollar equivalent produced tended to increase along with national income until a certain point, after which point it tended to decline. In the first studies, a level of annual Gross Domestic Product (GDP) per capita of roughly US$5,000 was found to be the watershed mark (Radetzski, 1991, cited in Bailey, 1993). Thus, it was posited that pollution levels, as plotted against per capita income, followed a sort of inverted "U" curve. A few studies of other types of pollution confirmed such a phenomenon. The rationale given for such declines tends to be greater revenues available for pollution prevention as well as higher demand for environmental quality by the public as personal income rises.

This type of analysis, however, is open to several critiques. First, it only shows such inverse relationships for certain pollutants. Not all forms of pollution show a decline past a certain point of economic development. Second, some research shows that some pollution levels which do decline as income rises often level off at rates relatively close to the peak emissions rates which are often environmentally unsustainable.[3] Third, studies have tended to concentrate on pollution levels, as opposed to resource consumption, which is a crucial issue for many of the resource poor MPCs. Finally, the analyses generally do not consider carrying capacities, levels of ambient resource quality, or other concepts central to sustainability. In many developing countries, while the pollution as measured per unit of production has decreased, overall pollution loads have increased. Moreover, even if overall levels of pollutants eventually do decrease, the additional pollution emitted when emission levels are at their peak could exceed maximum sustainable rates. This could seriously disrupt the ecological systems, even lowering the original carrying capacity, as shown in Figure 1.

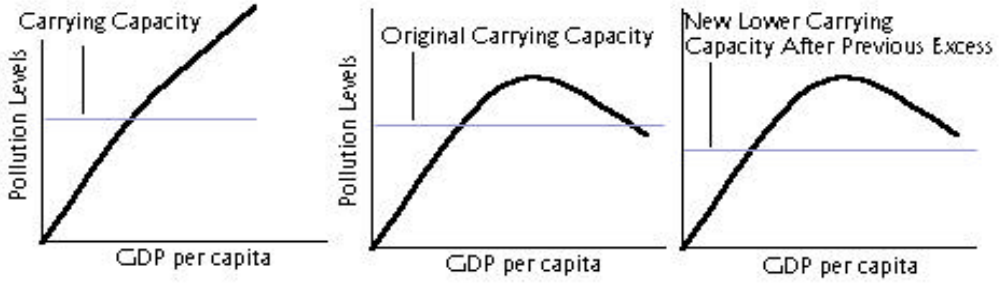

Figure 1. Many pollution emission levels do not decrease along inverted "U" curve (left) and even for those that do, peak emission levels may exceed carrying capacity, even causing permanent damage (centre & right).

In the case of the Euro-Med, economic development in MPCs has tended to be accompanied by higher levels of resource consumption and increased pollution loads.[4] Even for the specific situations for which an inverted U curve phenomenon might be expected, 9 of the 12 MPCs are well below the estimated "watershed" levels of US$5000-7000 GDP per capita, after which improvements are projected. In the case of Egypt, for instance, even assuming an optimistic scenario per capita income will only reach the US$5000 level in roughly 40 years.[5] In sum, based on current trends, it can be expected that without aggressive, targeted environmental policies and investment, Euro-Med economic expansion, will tend to exacerbate environmental pressures in the majority of MPCs, not detract from them, at least in the short and medium term.

[3] Per capita CO_2 emissions in high income countries in 1996, for instance, were equal to those of 1980, however, the rate at which they balanced off – 12.3 metric tons per capita – is over three times that of the Middle East and North Africa region (World Bank,1999).

[4] For example, all MPCs for which there was data have experienced increases in CO_2 emissions between 1980 and 1996 (World Bank, 1999), and all, with the exception of Syria, experienced increases in organic water pollution between 1980 and 1993.

[5] Calculations based on economic growth at a constant rate of 5% annually, given a constant annual population growth rate of 1.6%, as projected in UNDP, 1998.

It is questionable how much more several of the MPCs can take in terms of pressures on natural resources, many of which are already facing critical threats. Several of the MPCs are already utilising over 100% of their renewable fresh water resources, for instance, and even more are facing serious problems of water quality. In addition, levels of air and water pollution already exceed international standards in many MPCs as will be discussed later.

3.2. Scale Effects of FTAs

According to studies investigating the 1992 initiation of the European Union's single market, the complete removal of trade barriers within Europe was likely to be the direct source of increases in transport, air pollution and domestic waste production.[6] The study estimated, for instance, that each 1.5% increase in economic growth would lead to 10-20% increase in air pollution emissions. The expected changes varied largely according to geographical location. Significantly, all southern countries, the lesser developed within the EU, were likely to see increased air pollution emissions. Empirical data looking at CO_2 emissions covering the period in question does show an increase for all four least developed EU countries (Greece, Ireland, Portugal, and Spain), with overall emissions for the four rising 30% between 1990 and 1996.[7]

In the case of NAFTA, emissions of various types of air pollutants by Mexican manufacturing declined between 1988-1994, after which point overall levels almost doubled between 1994-2000 (Gallagher, 2000). The Clinton administration had promised that the agreement would ease environmental pressures on the US-Mexican border. Studies examining NAFTA's first five years of implementation, however, have shown that while the relative share of the border regions in national production decreased, in absolute terms, it continued to grow at rates of up to 20% annually (Jenkins and Branch, 1996). In addition, while substantial sums were invested in pollution control at the factory level, many of the communities on both sides of the border witnessed increases in both water and air pollution. Thus, instead of an improvement in the environmental situation of the border regions due to a redistribution of production, the net effect of NAFTA, thus far, has simply been an increase in the areas' total pollution loads.[8]

According to at least one source, lorry transport was projected to increase seven-fold between 1995-2005 due to NAFTA (FoEI, 1999). Increases in production and transport of wastes and toxics resulting from NAFTA seems to be overwhelming the ability of the governments to effectively supervise their use and disposal – hazardous waste crossing the US-Mexican border reportedly increased by 50% in 1996 alone and it is estimated that less than 1% of lorry traffic at border crossings are inspected (Global Trade Watch, 1998). Such minimal enforcement measures offer little incentive to abide by environmental regulations. Indeed, according to reports, the final disposal of one quarter of hazardous waste produced in maquiladoras is unaccounted for (ibid, 1998).

Reduced tariffs on manufactured goods, increased investment in production facilities, increased transportation of goods a greater trend towards intensive export-oriented agriculture, all promoted within the economic development policies of the Euro-Med economic liberalisation programme, will mean risks for MPCs including increases in:

- Water consumption and pollution from industrial, agricultural and domestic sources
- Air pollution from industrial and domestic sources, as well as transportation
- Solid waste production from increases in industrial and domestic consumption[9]
- Loss of open lands, including water recharge zones and wildlife habitat, due to increased road construction, urbanisation, and industrial development
- Exploitation of marginal lands by small-scale farmers
- Resource extraction, including fuel and mineral mining and possibly also fishing
- Marine pollution, pressures on coastal areas, especially in ports serving as sub-regional commercial hubs, and risk of accidents resulting from increased marine transport

[6] Task Force Report on the Environment and the Internal Market (hereafter 'Task Force'), 1989.
[7] based on figures in World Bank, 1999.
[8] Recent figures indicated a 2% drop in the amount of pollution produced by large manufacturing facilities in the US and Canada between 1995 and 1996. However, in violation of the NAFTA environmental side agreement, data for Mexico was not collected due to lack of effective pollution monitoring systems there, and thus it is not possible to estimate overall trends.
[9] Increases in waste production and pollution should be expected both as a result of increased industrial activities and of changes in consumer habits in MPCs due to lower prices for goods imported from the EU after tariff reductions.

In most cases, the burden brought about by the Euro-Med FTZ will be adding to already alarming trends. Water use in the Maghreb is projected to increase by a factor of seven over the next 20 years (Pearce, 1996). A World Bank study on the Middle East and North Africa (MENA) region predicted a growth of 50% in industrial pollution and 60% in transport pollution for the region unless significant policy changes were implemented (World Bank, 1995). Energy production in the MPCs is projected to increase by 36% between 1999 and 2025, while consumption in these countries is to increase between 124% during the same period, with fossil fuels promoted as the primary energy source (MEDA Team-Information, 12 January, 2000).[10]

Discussions of increases in scale cannot be evaluated in isolation from questions of the ability of the affected nations to cope with predicted changes. As noted already, several of the MPCs already extract water beyond renewable rates. In addition, according to the World Bank, in MENA countries over 160 million lived in cities already exceeding World Health Organisation air pollution standards and only 20% of urban wastewater is treated - as compared to 60-70% in Europe (World Bank, 1995). Moreover, most already face severe problems of lack of capacity both in terms of infrastructure and trained personnel, to treat solid and liquid wastes.

In order to avoid additional pressures, anticipatory policy measures and infrastructure will be necessary. Currently these are largely lacking. In Jordan, for instance, a reduction of customs duties on motor vehicles by over 50% was implemented in 1999, despite the absence of any comprehensive national traffic management plan – a situation criticised as likely to result in more traffic jams and higher air pollution.

Should the Euro-Med FTZ lead to removal of environmentally harmful subsidies (e.g. for fossil fuels, water, fertilisers, etc.) and to improved access to advanced environmental technologies (to be discussed below), some of the negative environmental impacts may be somewhat mitigated. Such outcomes are only likely, however, if the MPCs actively develop and implement national and regional development strategies which promote sound environmental and economic policies, such as price internalisation and economic incentives for investment in environmentally desirable initiatives, such as renewable energy or water conservation technologies.

3.3. Demographic Shifts within Nations

Free Trade Agreements can also lead to shifts in the location of production, which can also bring about population shifts as well. Analysis of the EU indicated that unification would accelerate trends of urbanisation, as people moved away from non-competitive rural livelihoods, thus threatening several valuable natural areas on the outskirts of cities. Empirical data confirm a trend in urbanisation for the EU, although at rates comparable to those of other industrialised nations. Similar population shifts were projected due to NAFTA, especially in Mexico. During NAFTA's first 3½ years employment in maquiladoras along the US-Mexican border rose 50% (Seligman, 1997). This movement has put further pressures on areas already incapable of supplying basic resources to the population and coping with the population's industrial and domestic pollution loads.

A Euro-Med FTZ is projected to exacerbate trends of urbanisation in MPCs, as well as possible increases in immigration from MPCs to urban centres in Europe (Handoussa and Reiffers, 1999). It is also likely to lead to increased pressures on the coastal areas, including on already overcrowded ports along the Mediterranean Sea, as the economies become increasingly oriented around exports to Europe. For many of the MPCs, these coastal areas are of unique ecological significance. In Algeria, for instance, 75% of the country's renewable water resources are concentrated in the coastal strip which makes up only 6% of the total area (Kayamanidou, 1998), while in Jordan, the nation's only port city is home to the world's northern-most coral reefs. Thus, even small additional pressures can have severe consequences. The development of ports to facilitate Mediterranean trade is already being witnessed, with dozens of port construction or extension project initiated since the signing of the Barcelona Declaration, many with financial support of the institutions (MEDA and the European Investment Bank) acting under a 'Euro-Med' mandate.

[10] Some even more worrying estimates predict a 270% growth over the period 1995-2020 (Roque, 1996).

4. COMPOSITION

Aside from changes in the *amount* of production, trade liberalisation also affects what types of products are produced and consumed, and can lead to production shifts between sectors or even within sectors. In the case of energy production, for instance, the Euro-Med FTZ is expected to facilitate greater use by EU nations of natural gas from the southern Mediterranean, in place of more polluting coal and oil sources.

In terms of impact on industrial production, relatively little change in the composition of industries was found in post-NAFTA Mexico (Gallagher, 2000). Changes in agricultural production, however, were noted. Trade agreements often encourage export-oriented economies in developing countries. Transitions from cultivation of traditional food stuffs to that of export-oriented cash crops, for instance, generally involve more intensive use of machinery and of agricultural inputs, such as water, fertilisers, and pesticides. In addition, because agricultural production in developing countries which is designated for Europe, for instance, generally involves non-native crop species, there is also the danger of the inadvertent introduction of exotic pests which can seriously disrupt local ecosystems.

NAFTA has been found to have threatened the livelihood of Mexican producers of maize, a traditional staple crop there, as local producers cannot compete economically with cheap US imports. Thus, they are faced with the prospect of either changing crop types and cultivation techniques in favour of more intensive methods or abandoning their traditional livelihoods and seeking employment in other sectors (CEC, 1999). While the Euro-Med Partnership does not call for free trade in agricultural goods, it does call for trade liberalisation in accordance with WTO rules. Furthermore, it is important to note that such shifts in agricultural production are likely to take place to some degree as the overall economies of MPCs will become increasingly foreign trade focused under the Euro-Med.

In addition to shifts in economic production, it is also important to note that FTAs also affect consumption patterns among consumers. This is especially likely as the MPCs open their markets to European manufactured goods. As those who can afford to, adopt Western consumption habits, there is likely to be a corresponding rise in such environmental loads as packaging wastes and domestic water and electricity consumption due to increased use of products such as home appliances.

4.1 Pollution Havens

One of the most debated issues in trade-environment research is that of "pollution havens" – the relocation of polluting industries from countries with high environmental standards to those with lower environmental standards and/or poorer enforcement of standards. Some have even posited that countries may purposely keep standards low in order to attract such "dirty" investment. Much of the economic research undertaken on this topic comes to the conclusion that the economic benefits of low environmental regulation are insufficient to motivate industries to relocate or to attract new investment, as environmental control costs are generally minor for most industries. This said, for certain polluting sectors, however, environmental costs may be high enough to influence location decisions (Ewing and Tarasofsky, 1997).

Empirical evidence is mixed. One study claims that at one time Ireland and Spain tried to offer themselves as pollution havens within Europe, but were unsuccessful (cited in Bailey, 1993). Industry growth in Mexico since NAFTA came into effect, however, suggests that concern over pollution haven formation may be justified, as there has been an overall increase in the share of "dirty industries," such as chemicals, metals, and minerals, in Mexican exports (Jenkins and Branch, 1996).[11] While it is difficult to predict what will occur in the Euro-Med case, the serious gaps between partners in terms of levels of economic development and systems of environmental regulation and enforcement mean that conditions for a migration of polluting industries do exist.

4.2. Economies of Scale and Efficiency

While removal of trade barriers can cause shifts in production which are environmentally detrimental, it can also allow for taking advantage of economies of scale and other methods of more efficient use of resources.

[11] Another study of pollution intensity of Mexican industries found that while overall, they were several times more pollution intensive than US industries, there were in fact sectors for which Mexican producers were cleaner than their US counterparts, suggesting that, at least in some cases pollution intensity may be more a question of the age of equipment, rather than regulatory frameworks (Gallagher, 2000).

Opening countries to competition was found to be beneficial in terms of efficiency rates. In the case of electricity production, both the formation of the European single market and NAFTA were thought to have improved overall power production efficiency by integrating electrical grids, allowing for production at the most efficient locations (Task Force, 1989; CEC 1999). Opportunities for such efficiency improvements in utilities and other sectors almost certainly exist in the Euro-Med region as well. In terms of the energy sector within the Euro-Med, however, the real environmental opportunity is the development of solar and wind energy which are ideal for the climates and terrain of most MPCs. To date, however, this option has been largely ignored within the Euro-Med framework, with work concentrating on expansion of fossil-fuel networks.[12] Serious infrastructure investments are necessary *prior* to trade liberalisation in order to promote alternative energy and other similar goals.

5. TECHNIQUE

One of the primary arguments supporting a win-win relationship between trade and environment is the prospect of facilitating technology transfer. In the case of the EU, the establishment of the common market has facilitated the transfer of technologies throughout member states. The EU mandate, however, meant that members countries were often forced to adopt relatively high standards which demanded use of advanced technologies, a situation which does not exist within the Euro-Med. In the case of NAFTA, prior to the adoption of NAFTA the White House promised that new investment would bring better, less-polluting technology (White House, 1992). This author, however, has not found any studies have been done to evaluate to what extent such processes have indeed occurred.

With trade liberalisation between industrialised and developing countries there are higher incentives for developing nations to implement environmental management plans, such as ISO 14000. Such a trend is already occurring in Europe and is getting underway in some of the MPCs as well. Since such certification schemes oblige businesses to seek sound environmental management throughout their production and supply chains, increased trade contacts between the EU and the MPCs could mean an increase in environmental management plans by MPC businesses with European partners. Environmental technologies and certification programmes often involve real economic costs, however, and while many of the technologies or management systems pay for themselves over time, initial capital outlays are often necessary and thus present serious obstacles for small and medium sized enterprises (SMEs), who make up the overwhelming majority of producers in many MPCs.[13] In addition, adoption of advanced environmental technologies remains unlikely as long as countries lack sufficiently high environmental standards and levels of enforcement.

A Euro-Med FTZ could facilitate technology transfer, however, such a scenario is not a given. Instead of obtaining best available technologies, MPCs could become a dumping ground for equipment being phased out in the EU, for instance. In order to prevent such an occurrence, policies that focus on environmental technologies as a priority for customs and tax benefits for instance, would be needed. In addition, a Euro-Med agreement which would obligate European investment to at least meet EU environmental production and product standards could be an initial step towards mitigating such a threat.

Programmes such as that of Euro-Mediterranean Energy Forum to promote renewable energies and institutions have much potential if backed up by political will and support, as do institutions such as Egypt's Business and Technology Development Centres if they should specifically make environmental technologies a priority. Despite potential, however, relatively little actual progress is actually being made in implementing such concepts within the Euro-Med sector fora. Programmes to facilitate necessary technology transfer prior to trade liberalisation are largely lacking, a surprising circumstance given the high level of importance placed on technologies for addressing environmental issues. As with other issues previously mentioned, reducing environmental impacts simply does not appear to be a priority within the Euro-Med.

[12] Fossil fuels currently represent over 80% of total energy supplies for MPCs and even with renewable energy programmes, the share is predicted not to drop below 75% before 2020 (Roque, 1996).

[13] Firms with less than 10 employees make up 94.7% of total enterprises in Egypt, 93.2% in Jordan, and 88% in Lebanon, for instance (Di Pietro, Gomez y Paloma, and Ghazi, 1998).

Other expected changes in technique, such as the expected shift from traditional to intensive export-oriented agriculture, are likely to mean increased consumption of resources (most importantly water), higher pollution rates, drops in soil quality, and marginalisation of poorer farm workers. Spanish olive growing since its accession to the EU largely confirms this, as does a comparison between export-oriented Israeli production and Jordanian and Palestinian agricultural production (Bonazzi and Gomez y Paloma, 1998; FAO data on fertiliser use from website: www.fao.org; FoEME, 1998).[14]

6. REGULATORY ISSUES

6.1. Addressing Environmental Concerns

Free trade regulation, by emphasising market access as an over-riding value, is often seen as undermining effective environmental regulation. Conversely, environmental regulation is sometimes seen as a barrier to trade, whether because of outright bans on certain types of goods or production methods, technical restrictions, or costs which affect competitiveness. FTAs have started to attempt to resolve potential friction.

Although the original Treaty of Rome establishing the European Community in 1957 did not specifically mention environmental issues, their transboundary nature, their impact on trade, and mounting public concern, pushed them onto the Community agenda. The Single European Act (SEA) of 1987 directly addresses environmental issues with Article 100a stating that environmental protection is a legitimate priority within the mandate of the EU, and Article 230 obliging states to integrate environmental concerns into other policy areas. The Amsterdam Treaty, which amends the SEA, goes even further in that it explicitly states that the goal of the EU is to promote "balanced and sustainable development," it expands the authority of EU institutions dealing with environmental issues, and it reinforces the importance of the integration of environmental issues in other policy fields. This being said, a clause in the preamble to the Amsterdam Treaty stating that sustainable development should be achieved "within the context of the accomplishment of the internal market" is seen by some as declaring sustainability goals to be subservient to those of the market.

During the early stages of the negotiation of NAFTA, environmental concerns were neglected, however, public pressure forced the trade teams to incorporate them eventually. The preamble to NAFTA states that it is the intent of the agreement to, "Contribute to the harmonious development of world trade...in a manner consistent with environmental protection and conservation...; promote sustainable development...; [and] strengthen the development and enforcement of environmental laws and regulations. While this is a general and non-binding clause, inclusion of explicit environmental goals in the agreement's preamble expresses the notion that NAFTA is intended to promote a specific type of development which includes social goals as well as purely economic ones.

Details regarding methods and instruments for dealing with environmental issues under NAFTA were included in a separate, parallel agreement – the North American Agreement on Environmental Cooperation (NAAEC). This marked the first time that the environment was seriously addressed in the context of a trade agreement, however, such a dual-track approach was criticised as going against commitments made to 'mainstream' environmental concerns into trade policy and is thought by many to have reduced the effectiveness of the environmental clauses.

The Asian Pacific Economic Cooperation (APEC) forum lists sustainable and equitable growth among its primary objectives. APEC Environment Ministers have produced both an 'Environmental Vision Statement' and a 'Framework of Principles for Integrating Economy and Environment.' Despite such symbolic steps, APEC suffers from a lack of political will among most partner nations to actively address the environment.

The Barcelona Declaration establishing the Euro-Mediterranean Partnership calls for "sustainable and balanced economic and social development." It also mentions such environmental goals as the need for

[14] Some claim that high EU standards regarding chemical-levels on food imports may actually induce a reduction in agro-chemical use as countries become more export-oriented. This research, however, did not find statistical data to back up such claims in the case of the Mediterranean region.

conservation of fish stocks, sustainable management of water supplies, and promotion of "environmentally-friendly agriculture". The Euro-Med process does not specifically address actual causal links between its trade agenda and the environment, however.

At the core of the Euro-Med's economic programme are the bilateral association agreements between the EU and southern Mediterranean countries. The name "association agreement," as opposed to "trade agreement," implies that more than just trade issues are to be agreed upon, and thus, provides hope that sustainable development concerns could be incorporated. There is, however, little if any mention of environmental issues within the association agreements already concluded. Even in the association agreement between the EC and the PLO, which is exceptional in that it does list some such objectives, actual sustainable development targets and programmes for reaching such targets are noticeably lacking. This is in sharp contrast to the trade objectives which list specific tariff reduction rates and schedules for implementation.

6.2. Harmonisation of Standards and Compatibility between Trade and Environmental Regulation

Harmonisation of standards is central both to facilitating trade and ensuring adequate health and environmental protection. It also lies at the heart of questions over national sovereignty. According to decisions of the European Court of Justice, EU nations have the right to restrict trade for environmental purposes. In reality, in the EU, community-wide standards are often a compromise between environmentally progressive states and those lagging behind. According to one analyst, for EU members "with relatively weak environmental movements, the EC has been the single most important factor in improving their environmental quality" (Vogel, 1995). This upward harmonisation occurred because of the EU's binding governmental structure and was aided by 'structural funds' which were made available for assisting development needs of the poorer EU members. This notwithstanding, there have been several examples when environmental regulation has been restricted following challenges by member states within the EU that it violated free trade, including regulation on food standards, fuel content, automotive design, and others.

Officially, NAFTA discourages downward harmonisation of environmental standards, stating that any harmonisation should be implemented, "without reducing the level of protection of human, animal, or plant life or health." It also states that it is "inappropriate to encourage investment, by relaxing domestic health, safety, or environmental standards" (NAFTA, Articles 713 and 1114.2). Channels are also available for citizens to take action in cases which persistently violate these principles.[15] NAFTA has been criticised, though, for what it does not address, e.g. provisions allowing for preferential treatment of environmental policies, such as subsidies for environmental conservation projects (Greenpeace, 1993). Evidence seems to indicate that the overall level of Mexico's environmental legislation has risen since NAFTA, as has the level of enforcement of these policies.[16] Despite overall improvements, incidents of standards lowering in probable deference to trade interests have occurred: Mexico repealed its requirement that environmental impact statements be prepared for highly polluting sectors such as petrochemicals and fertilisers and the US relaxed standards regulating food safety and farm workers' exposure to toxic pesticides (Public Citizen, 1997b; Global Trade Watch. 1998).

NAFTA's rules on investment protection have brought about unexpected, but serious challenges to national sovereignty in terms of determining environmental policy. Companies are utilising NAFTA's investment guarantees to obligate governments to compensate companies for economic losses (including loss of future profits) which could result due to raising regulatory standards. One observer has commented that this amounts to a complete contradiction of the internationally accepted "*polluter pays principle*," and that NAFTA's investment protection regulation has resulted in a situation in which governments must "pay polluters not to pollute".

[15] Only persistent violations are subject to review and penalty, which are to be collected as trade sanctions. This is as opposed to the Canada-Chile trade agreement, for instance, which allows for direct fines. Using trade sanctions to enforce environmental standards is widely opposed by many developing countries, which fear 'green protectionism', including Egypt, and so a fine levied directly against the violators would probably be more acceptable to MPCs within a Euro-Med framework.

[16] The number of environmental inspectors, for instance, increased by a factor of five between 1990 and 1995, while the number of regulatory inspections increased by a factor of ten over the same time period (Jenkins and Branch, 1996; Husted and Logsdon, 1997). While it is difficult to draw a definitive correlation between an improvement in environmental regulation and NAFTA, as the improvement had already begun before the agreement went into effect, even much of this pre-agreement improvement might be attributed to NAFTA, as Mexican authorities wanted to diffuse objections.

Given that the MPC economies are of relatively marginal importance overall to the EU, it is unlikely that a Euro-Med FTZ will result in downward harmonisation of EU standards, although it should be stressed that unlike other FTZs, there is no political or regulatory impetus pushing for upward harmonisation either.[17]

6.3. Multilateral Environmental Agreements

Several multilateral environmental agreements (MEAs) which address global environmental issues include trade measures, or measures which affect trade, such as the Basel Convention, which bans trade in hazardous waste between OECD and non-OECD countries. Such environmentally beneficial measures are open to challenge under free trade rules. The EU, as a supra-governmental organisation is itself a signatory to several MEAs, and thus, its member nations are obligated to uphold them. NAFTA has officially granted certain MEAs preferential status within the agreement, whereby commitments of listed MEAs take precedence over other trade obligations.

The only mention of an MEA in the Euro-Med is the Barcelona Declaration's general statement that members support the goals of Barcelona Convention and the Mediterranean Action Plan (MAP). Many of the most important protocols of the Barcelona Convention, have yet to be ratified, however, thus reducing its effectiveness. It is questionable how much of an effort, if any, is being made to incorporate MAP's programmes and obligations into the Euro-Med process. Even many of those aspects of MAP which are already in effect, such as the programme for a regional Agenda 21 (Med 21), are not being integrated into the Euro-Med process. MAP's Mediterranean Commission for Sustainable Development (MCSD) has commissioned its own study of environmental effects of trade liberalisation in the Mediterranean, due to come out it 2000, however, it is unclear if the study results will be utilised within the Euro-Med Partnership.

7. INSTITUTIONAL RESPONSES

7.1 Prior Assessment

Realising the potential environmental implications of free trade policies, the European Commission itself commissioned a study of expected impacts soon after the signing of the Single European Act in 1987. After much public outcry, the governments of Canada and the USA both conducted their own studies of NAFTA prior to ratification of the agreement. Such studies were significant in determining the eventual institutional and policy responses taken to avoid or mitigate predicted environmental consequences. For the Euro-Med Partnership, a limited number of studies, including the present report, have investigated various aspects of the environmental impacts of its trade programme, however, none have any status within official Euro-Med policy-making institutions and none are obliged to incorporate any study recommendations. In 1999, the European Commission announced its intention to conduct a sustainability impact assessment of the Euro-Med FTZ, however, over a year later there had been no progress in carrying this out.

7.2. Structural Adjustment Programmes (SAPs)

Many economic liberalisation programmes, including that of the Euro-Med Partnership, involve structural adjustment programmes, which can have far-reaching effects on sustainable development. In so far as they force countries to open up to competition and reduce subsidies for sectors such as energy and water, they can lead to more efficient resource use. This would be important for the Mediterranean region, which has substantial energy subsidies and low energy efficiency rates. A World Bank study on the MENA region, for instance, estimated that removal of the region's US$25-26 billion in fossil fuel and electricity subsidies could reduce total air pollution by up to 20% (World Bank, 1995). Similarly, removal of subsidies for fertilisers and pesticides, both of which are heavily subsidised in several MPCs, could also pay environmental dividends, as experience in Egypt has shown. It must be mentioned though, that under the Euro-Med sponsored SAPs, reductions of subsidies are not guaranteed, although a trend in this direction may be developing.

[17] While it is seems obvious to concentrate on the danger to high EU standards which might result from a free trade agreement, there are also instances in which policies in MPCs may be under threat. At the time of the writing of this article long-standing legislation in Jordan banning diesel cars was possibly in jeopardy due to obligations under trade agreements, including Jordan's Euro-Med association agreement and its obligations as a new WTO member.

While SAPs generally improve productivity and efficiency ratios, they also tend to cause utilisation of marginal lands by subsistence farmers, lower resource rents, reduce the governments' capacity and/or willingness to address social and environmental issues due to budgetary pressures, and lead to an expansion and intensification of resource extractive industries (Reed, 1996). Moreover, SAPs also often have severe social impacts. For instance, under SAPs, women almost always tend to suffer more than men, the poor suffer due downward pressures on wages and upward pressures on prices, and large-scale unemployment is common. In several MPCs, such impacts have led to wide-spread, sometimes violent protest, as alternative policies to provide basic needs were not developed.

The loss of customs duties under a free trade agreement and its associated SAPs means additional budgetary pressures for governments. In the case of some of the MPCs, loss of customs duties under a Euro-Med FTZ will mean losses of 10-20% or more of overall government revenues.[18] Under short-term budgetary crises, social and environmental budgets are often the first to be slashed. The Lebanese Ministry of the Environment, for instance, was threatened with closure in 1999 as a result of budget constraints and, while it survived, it ended up seeing its already meagre budget slashed in half (Saab, 1999). Thus, economic liberalisation under the Euro-Med Partnership could well result in reduced governmental capacity to deal with environmental and social challenges exactly at a period when increased economic activity is likely aggravating the problems.

The EU allocated massive funds for structural adjustment of its southern members. Under the Euro-Med Partnership, only roughly 9% of total development aid (the MEDA programme) is dedicated to coping with structural adjustment (Euromed Special Feature - May 21, 1999), and despite the likelihood of negative environmental implications of the Euro-Med SAPs, environmental protection is not directly covered by structural adjustment funding.

7.3. Environmental Institutions

Under the EU system, environmental issues are managed by Directorate General offices within the European Commission which is in charge of developing community-level policies. As such a system involves a political body with defined statutory and regulatory authorities, it is not a useful model for the Euro-Med case, in which trade occurs between independent sovereign states.

Under NAFTA and its environmental side agreement, several bodies were created to address expected environmental problems. These included the tri-national Commission for Environmental Cooperation (CEC), designed to serve as a contact point for public comment, offer advice to NAFTA authorities, and act as a dispute resolution forum. While well-intentioned, CEC suffers from quite limited authority, as it cannot demand changes in government policy or impose punitive measures for violations of environmental regulations. In order to address specific problems likely to arise along the US-Mexican border two additional bodies were established: the Border Environment Cooperation Commission (BECC) and the North American Development Bank (NADBank). The main task of the BECC is to work with local communities in order to coordinate the development of environmental infrastructure, while role of the NADBank is to offer funding for such projects (its performance is discussed in the following section).

In addressing environmental issues APEC held a Sustainable Development Summit, as well as meetings of environmental ministers. Ministers have recommended annual 'sustainable development' reviews to assess progress. In addition, APEC has set up various sectoral working groups, some of which have environmental issues as part of their permanent agenda. APEC action programmes also call for the incorporation of environmental and national resource accounting in national accounts. Critics claim however, that the environment lacks an institutional home within APEC, and that the working groups that do handle issues with environmental impacts lack expertise to adequately address these matters (Bello, and Bullard, 1997; Hunter, 1997).

[18] Implementation of value-added tax (VAT) systems, as suggested under the SAPs of the Euro-Med Partnership as a replacement for customs duties, will only recover lost revenues, if at all, in the medium to long-term. Thus, at least in the short-term, government's capacity is likely to be reduced.

The Euro-Med Partnership has set up several institutions which address issues which impact upon the environment. The highest level of activity is via ministerial meetings on the environment, water, energy and other relevant topics. The level of governmental interest in addressing the environment in the Euro-Med framework is questionable, however, given that during the more than four years of the Euro-Med process there has been only one meeting of Environmental Ministers, at which less than half of the countries were represented by their Ministers. In addition, the ministerial meetings tend to result in non-binding statements which are rarely followed up in terms of concrete actions. The Euro-Med process also hosts sectoral 'forums' which deal with energy, water, and other relevant topics, which may be more reasonable frameworks in which to pursue genuine sustainable development goals. Their policies to expand energy, transportation and water networks, however, far outpace their achievements in promoting resource conservation.

The Euro-Med Partnership has produced a Small and Medium-Term Priority Environmental Action Programme (SMAP), managed by the EC's DG for Environment, which aims to coordinate small to medium-scale environmental projects. While an potentially useful first step, SMAP suffers from a lack of secure resources and institutional backing and has suffered long delays in actually granting support to projects. Over four years into the Partnership, the SMAP still had not funded a single project, and had only held one meeting of national correspondents.

7.4. Financial Support

In terms of specifically addressing concerns related to the development of the European market, the EU dedicated massive structural funds in order to assist less developed member nations with their accession into the Union. Such funds were crucial in helping nations upgrade regulation and facilities in order to meet EU standards, including environmental ones, however, analysis of overall structural fund policy determined that there was inadequate compliance with measures designed to mitigate adverse environmental impacts of fund projects, especially in the economic periphery which contained many of the EU's unique wildlife areas (Task Force, 1989). Furthermore, because the funds were restricted to 'development' projects, conservation of important natural areas and other such projects did not qualify for funding.

NAFTA's NADBank, utilising initial investment by the US and Mexican governments to provide supplemental funding for environmental projects along the border, has failed to raise projected lending capital. Moreover, because it is a commercial lending institution, access to NADBank funds by poorer communities is limited. Several beneficial projects have begun receiving support of the CEC and NADBank, however, both institutions have been criticised for long delays in although several analysts have stated that NADBank funding is seriously inadequate to address actual pollution mitigation costs for the region (Seligman, 1993; Housman, 1994).

According to some observers, within APEC, the environment is seen as an "aid" issue, and therefore has become a hostage to struggles between the US and Japan, which disagree over the role of aid within the forum, resulting in little economic support for environmental issues.

A programme entitled MEDA is the principal financial instrument of the Euro-Med Partnership. The programme, funded and managed by the European Commission, was responsible for 3.4 billion ECU worth of funds for the 1995-1999 period.[19] The programme directs 90% of funding through bilateral channels, with 10% going for regional efforts. Its primary goals are:

- supporting economic transition among the Mediterranean countries, in order "to prepare for the implementation of free trade through increasing competitiveness…",
- alleviating "the short-term costs of economic transition," and
- promoting regional cooperation.

While environmental projects could certainly fall under these objectives, there is no set minimum allocation for environmental issues, and while some environmental projects do benefit from MEDA funding, the programme lacks an overall integrated sustainable development strategy. Moreover, MEDA has experienced long delays in actually distributing promised funds, including for environmental projects.

[19] European Commission, Unit IB/A.1, September 1997 Euro-Mediterranean Partnership, Information note no 5.

The European Investment Bank (EIB) acts as the other major funder of the Euro-Med partnership, charged with lending up to 4 billion Euro between 1995 and 1999, for investment projects in the 12 MPCs. In terms of the environment, the EIB offers environmental projects funding at concessional terms, and has been a significant funder of projects such as water supply and treatment facilities in the Mediterranean region. The EIB has been harshly criticised, however, for also supporting many environmentally damaging projects, including those promoting road transport and fossil fuel energy use (see for example, CEE Bankwatch, 1999). The capacity of the EIB to undertake quality environmental assessment of projects it funds has also been criticised as seriously inadequate.[20]

Funds dedicated for the Euro-Med partnership are distributed among a large number of recipient countries, and only a small portion of these funds is for environmental purposes. Given the massive investments necessary for environmental protection in the MPCs – the World Bank estimated that US$55 billion would be necessary to install basic water and sanitation networks in the MENA region (World Bank, 1995) – Euro-Med funding is insufficient to mitigate the environmental damages it is likely to cause. Furthermore, when one considers the massive foreign debt owed by MPCs – at over US$ 200 billion – the usefulness of the Euro-Med financial programmes is placed in its proper proportion.[21] Given this reality, forgiveness and/or restructuring of EU-MPC debt may be necessary in order to provide for any sustainable growth. While such measures have begun to be introduced at a bilateral level (between MPCs and individual creditor countries in the EU), the issue of debt has not been officially incorporated into the Euro-Med framework.

Finally, it should be noted that both the European Commission and the EIB are wholly European institutions, and thus, there is no southern Mediterranean representation in the governance of Euro-Med finances, nor is their input into lending decisions by non-governmental actors. Such a lack of balance reinforces the perception of the Euro-Med process as a regional foreign policy programme of the European Union, rather than a true Partnership.

7.5. Civil Society Participation

Civil society organisations have been crucial in placing the environment on the trade agenda both within the EU and NAFTA. Failure to consider such viewpoints was nearly fatal to NAFTA, and has contributed to the recent failures to pass the Multilateral Agreement on Investment (MAI) and the so-called "Millennium Round" of the World Trade Organisation proposed in Seattle in 1999.

The EU now offers significant financial support for several non-governmental organisations, including in social and environmental fields, and offers a semi-official status to an umbrella organisation for European environmental NGOs, the European Environmental Bureau (EEB). Under NAFTA, citizens can bring issues to the attention of the CEC. In addition, the CEC is advised on a permanent basis by a Joint Public Advisory Committee (JPAC) which includes staff from members of the public, such that public environmental concerns are given a permanent channel to communicate with and influence the NAFTA governing board. Although ASEAN offers the private sector an official channel for input through a Business Advisory Council, it lacks such opportunities for non-for-profits and other citizens' organisations. Efforts by civil society groups to form a People's Forum to communicate opinions to APEC ministerial meetings have had mixed success, as governments differ greatly as to what role civil society should have in APEC's agenda.

Under the Euro-Med Partnership, official recognition of civil society's role has been given for such issues as the environment, trade unions, and human rights and civil forums have been held on these topics in parallel to high level Euro-Med ministerial meetings. Official activities in terms of social and cultural interchange also exist. Despite this, few official channels exist for civil society input into the Euro-Med decision-making process. In the field of the environment, an informal channel of communication has been organised between the European Commission's DG for Environment and a group of environmental networks active in Europe and the Mediterranean region.

[20] Its dedicated staff for such tasks is significantly smaller, for instance, than that of other multilateral lending institutions such as the World Bank, which has a similarly-sized lending portfolio (CEE Bankwatch, 1999).

[21] Jordan, for instance, has not taken advantage of EIB loan possibilities for environmental purposes, reportedly because it does not want to take on any additional debt at this stage - this despite the preferential terms of lending offered by EIB for such projects.

Civil society contact with the EIB is almost non-existent, as the EIB has relatively few field branches in MPCs and is largely closed to public scrutiny. In addition, EIB policy of announcing its loans only after approval, precludes any opportunity for meaningful civil society input into its lending decisions. Furthermore, because so much of the decision-making regarding the Euro-Med policies is located in northern Europe (Brussels in the case of the EC and Luxembourg in the case of the EIB) organisations based in MPCs – the areas most likely to be affected by the policies – suffer basic logistical difficulties in communicating their positions to the relevant responsible bodies.

FTA	Sustainability Impact Assessment	Incorporation into Agreements	Institutions	Financial	MEAs
EU	Yes	Single European Act, Amsterdam Treaty	DG Environment, European Parliament, European Council, European Court of Justice	Structural Funds, EIB	Binding EU-level ratification
NAFTA	Yes	NAFTA Preamble, NAAEC	CEC, BECC, NADBank	NADBank	List for secured MEAs
Euro-Med	Not Yet	General Statements in Barcelona Declaration	SMAP	MEDA EIB	General reference to Barcelona Convention

Figure 2: Comparison of how selected environmental issues are addressed in various FTAs

8. CONCLUSIONS AND RECOMMENDATIONS

From preliminary examination of other trade agreements, it appears likely that the Euro-Med's economic liberalisation programme will lead to increased resource consumption, intensification of agricultural production and increased industrial and domestic pollution in most of the MPCs, at least in the short and medium term. If this is the case, such additional environmental burdens will, in many cases, be beyond the technical and/or financial capacities of the MPCs, and in some cases, such as water consumption, will contribute to exploitation of resources in excess of the natural carrying capacity of the affected ecosystems.

In order to avoid such unwanted outcomes anticipatory policies should be put in place. Many such measures should be taken prior to liberalisation of trade, including tariff reduction. This will include development of technical capacity, large-scale funding for infrastructure, and integrated cross-sector policy strategies. Potentially positive environmental impacts include increased technology transfer, increased efficiency due to removal of wasteful subsidies and opening markets to competition, and possible opening up of environmental markets. Such outcomes are not a given, however, and will demand a great deal of political will, something currently lacking in the present Euro-Med framework.

- Prior environmental assessments of the Single European Act and of NAFTA led to incorporation of several pre-emptive policies and the creation of some useful institutions and programmes. Such assessments of the Euro-Med's bilateral and regional trade programmes should be undertaken, especially with the support of official bodies who are empowered to implement research recommendations. Furthermore, programmes which monitor and evaluate trade related environmental indicators should be introduced in order to assess the Euro-Med's ongoing impact.

- As strong institutions are vital for integrating environmental concerns into multilateral agendas, the Euro-Med should establish an environmental coordinating body with appropriate authority and financial backing to monitor and address sustainability issues.

- Environmental concerns need to be made a priority within the trade agenda and within the various regional sector programmes. Attempts to deal with trade and environment through separate tracks make an artificial distinction between the two, and thus have proven largely inefficient and inadequate.

- Specific environmental commitments (including penalties for failure to meet obligations) need to be incorporated directly into binding Euro-Med documents, first and foremost into the bilateral association agreements. General statements of support for agreements do little to ensure actual goals are met.

- An obligation within the Euro-Med framework for foreign investors to maintain at least home-country environmental, health and safety standards in production and marketing abroad would be an initial step to eliminate some of the worst possible effects of regional free trade.

- Programmes to assist small businesses in accessing technology, implementing environmental management schemes, and exploiting 'environmentally friendly markets', need to be incorporated into structural adjustment plans, and executed by centres for promotion of the private sector.

- Economic incentives should be incorporated into the Euro-Med process, in order to promote environmental technology transfer. Environmental technologies should be made a priority for customs removal, for instance, and other policies including tax incentives and targeted government subsidies need to be put in place.

- The elimination of customs duties and structural adjustment programmes involved in the Euro-Med process may reduce the MPC governments' capabilities to deal with mounting environmental problems. In addition, they are likely to lead dramatic social disruption. To combat such effects, governments should use the revenues saved from removal of environmentally damaging subsidies to support subsidies and/or other economic incentives which support environmentally desirable development (e.g. solar energy, water conservation infrastructure, etc.) or to issue financial support directly to those most in need. Programmes to implement such reforms should be supported by the EU as well as possibly other economic actors active in the region's trade liberalisation (e.g. International Monetary Fund, World Bank, etc.)

- Given the potential scale of the environmental problems facing the southern Mediterranean region and given that the Euro-Med trade programme will likely exacerbate many of these problems, current funding for sustainability measures seems inadequate and should be reviewed. In addition, environmental screening of Euro-Med funds, whether MEDA or EIB funding, should be implemented.

- Current Euro-Med funding decisions are completely controlled by European institutions, a characteristic which severely detracts from the notion of Euro-Med as a true "Partnership". In order to increase effectiveness, a role for southern Mediterranean input should be incorporated into decision-making regarding funding, as should input from non-governmental sources.

- Civil society input has been essential in promoting a sustainable development agenda within other trade fora, and failure to consider such input has often frustrated trade and investment programmes. The Euro-Med Partnership should establish officially sponsored channels in order to fully facilitate civil society participation in sector fora, work programmes, and in funding reviews of MEDA and EIB Euro-Med lending.

Reviewing the Environmental Implications of a Euro-Mediterranean Free Trade Zone - The Textile Sector in Egypt

by EcoCon, Cairo, Egypt

1. INTRODUCTION

The objective of this study is to address the possible environmental implications of the establishment of a Euro-Mediterranean Free Trade Zone (hereafter referred to as MFTZ) as a result of its effect on the textile sector in Egypt. It will also draw preliminary implications for Palestine, Israel and Jordan. To Egypt this topic is of an extreme significance, as the cotton and textile sectors represent the country's most important non-oil exports, and the EU is the primary market for Egyptian exports, as well as its primary supplier. The European market is also of great significance to the textile sectors of several non-EU Mediterranean members of the Euro-Mediterranean Partnership. The research study will address the possible implications of the MFTZ on the growth of the textile sector, and relate that to the known environmental impacts of textile production. It will also recommend a strategy for avoiding expected negative impacts and promoting positive impacts.

2. TEXTILE SECTOR IN EGYPT

2.1. Textile Industry

The textile sector's significance to Egyptian economy is very important on the macro level. There are 31 public enterprises operating in the textile industry as well as almost 2,100 private enterprises that are members in the Egyptian Textile Manufacturing Federation (ETMF) as of 1998. In addition there are thousands of small factories and workshops (non-members in the ETMF), as well as informal workers that are unaccounted for in official statistics. According to ETMF, almost one million workers supporting five million Egyptians are employed in this sector, accounting for 30% of Egypt's total industrial labour force.

Approximately US$7.4 billion is invested in the textile industry. In 1997, the aggregate value of domestic textile production reached around US$2.34 billion on average, of which US$ 1.47 billion were traded within the Egyptian market while roughly US$870 million dollars were exported. It is also important to note that this industry acting as a large market for domestic cotton production, absorbing 80% of it.

An important characteristic of the textile industry is that it is one of the very few manufacturing processes that is handled completely in-country. It also has the highest value added. The value added of exports of one ton of raw lint cotton ranges from 7,000 to 8,000 Egyptian pound (LE) while the value added of one ton of textile exports reaches on average 23,000 LE.

2.2. Textile Sector Pattern

The public sector plays a major role in the Egyptian textile and clothing sector representing 90% of the productive capacity in spinning and 60% of the productive capacity in weaving, while the private sector dominates the much smaller clothing sector, as shown in Table 1. Of the 8 billion LE value production in 1997, cotton yarns from the spinning sector and cotton fabrics from the weaving sector account for almost 65% of the total sector production, while 20% is for ready-made garments and clothing. Wool, polyester and other blends account for the rest.

	Public Sector	Private Sector
Spinning Sector (Yarns)	90	10
Weaving Sector (Fabrics)	60	40
Clothing Sector	30	70

Table 1: Public vs. Private Share in Egypt's Textile Industry in 1997 (in %) *Source: ETMF*

2.3. Egyptian Textile Exports

In preparation for new developments such as creation of a Euro-Med free trade zone, it is important to evaluate the recent trends of the industry to determine how it may be affected by the events soon to take place.

2.3.1. Nature of Exports

Together cotton and textiles were the country's most important non-oil exports, representing almost 50% of non-oil exports in 1998. For the period 1995-1997 Egyptian textile exports averaged around US$700 million per year, accounting for almost 25% of total exports. This compares with 40% of total exports in the 1980s. This drop was mainly due to the collapse of the Eastern European block, which had been the main market for Egypt's textile exports. Egyptian textile exports with the exception of ready-made garments have stagnated in the early 1990s, as cotton yarn and cotton fabric exports declined due to a decrease in world demand and relatively high prices, and fine-count yarns lost the Eastern European markets. As a result, spinning mills shifted their production to coarser yarns, which negatively affected cotton yarn exports since Egypt was not competitive in this area. This was clearly manifested by the acute decline of cotton textile exports from US$809 in 1989 to US$497 in 1997 – a drop of 61%. In contrast to the deteriorating export performance of cotton lint, yarns and fabrics, exports of manufactured clothing boomed reaching a total of US$163 in 1997 up from US$59 in 1989 an increase of 173% (CAPMAS, 1989 and 1997).

2.3.2. Export Destinations

Yarns and Fabrics: Export performance of yarns and fabric has been stagnant since the loss of Egypt's main market of East Europe. The geographic pattern of Egyptian cotton yarn exports has changed dramatically between 1989 and 1997. In 1989, the share of the Eastern Europe accounted for 33.8% (the U.S.S.R share alone accounted for 23%), dropping to 3% in 1997. The main market for cotton yarn and fabrics exports has now become the EU, which claimed a 68% share in 1997 up from 39% in 1989.

Clothing: In contrast to yarns and fabrics, Egypt has been successful in expanding markets in ready-made garments and clothing accessories. The main market for Egyptian garments and clothing exports during 1989-1997 has been the US, which increased its share from 36% of Egypt's textile exports in 1989 to 56% in 1997. The EU is the next major market for Egyptian clothing exports, with a share of 26.1% in 1989, increasing to 33% in 1997. The share of Arab and Middle Eastern countries in Egypt's textile exports increased from 6.6% to 9% during the same period.

2.4. Problems and Challenges Facing the Textile Industry in Egypt

There is no doubt that the textile industry is playing a major role in the Egyptian economy, but it is also facing significant problems, some internal, related to industry structure, and some as a result of external influences. Problems which have had negative effects on the growth and the performance of the public and private sector spinning, weaving, and clothing companies, include the inefficiency of the public sector and the loss of the Holding Companies, the old technology in use, and the absence of knowledge about new markets after the fall of the Eastern-European block.

2.4.1. Egypt and the Agreement on Textiles and Clothing

In the early years of GATT, countries especially the industrial ones believed that textiles and clothing had special conditions and problems and therefore this sector had its own agreements, such as the Cotton Arrangement and the Multi-Fiber Agreement. In general most countries were protective of their domestic textile industries. Industrial countries such EU members and the US imposed quotas, while Egypt imposed conditional prohibitions. Lengthy and difficult negotiations to formulate modalities that would permit the eventual integration of the textiles and clothing sector into GATT on the basis of its strengthened rules and disciplines resulted in a new Agreement on Textiles and Clothing (ATC) in 1994.

According to the ATC textile and clothing imports will soon no longer be subject to bilateral quotas, rather, they will fall under GATT's non-discriminatory rules. The integration process should be carried out by the members maintaining such restrictions (i.e. quotas): Canada, European Community, Norway and the United States. In addition, all other members who have retained the right to use a transitional safeguard mechanism which allows the imposition of temporary measures to protect local industry are obliged to have an overall integration programme. By the end of 1996, 49 members including Egypt decided to join the programme.

The integration process is being carried out in three stages over a ten-year transition period (3 years, 4 years, and 3 years). Importing members decide themselves which products to integrate at each stage. The only constraint is that the list of products at each stage in the integration process must include products from each of the four manufacturing levels: *tops and yarns, fabrics, made-up textile products and clothing*.

It is important to note that while the ATC should liberalise trade, textiles and apparel will still be subject to normal GATT rules and national tariffs, and are still expected to be subject to significant non-tariff barriers, so that the ATC is not a comprehensive opening up of the sector.

3. MFTZ AND EGYPT

3.1. The MFTZ

The aim of the Euro-Mediterranean Association Agreements (EMAA) is to progressively create a free-trade area between the EU and southern Mediterranean countries (MFTZ). Bilateral association agreements with the EU have already signed by Tunisia, Morocco, Israel, the Palestinian Authority, and Jordan, and are currently in the process of being finalised with Egypt, Algeria and Lebanon. The main economic aspects of the agreements are the elimination of restrictions on trade, which remain with respect to the free access of exported industrial products of Mediterranean countries to the European market (in principle, already liberalised, but which are still the object of non-tariff limitations, technical standards, rules of origin, and so forth), the gradual elimination (over a period of 12 years) of all tariffs on imported industrial products from the EU, the immediate withdrawal of quotas on most manufactured products, and the harmonisation of policies on competition, intellectual property and other trade norms.

3.2. EU Association Agreement with Egypt

Currently, economic relations between Egypt and the EU are governed by a Cooperation Agreement dating from the 1970s. The agreement provides Egypt duty-free access to EU markets for industrial goods products wholly originating in its territory, although under a quota system. The agreement is not reciprocal, and Egypt continues to apply Most Favoured Nation tariffs to goods of EU origin. The agreement is complemented by periodic financial protocols, which establish the amount of financial resources provided the EU over five-year periods. These institutional arrangements will be changed with the implementation of a Euro-Med Association Agreement.

The basic objectives of an EMAA are to achieve reciprocal free trade between the EU and Mediterranean countries in most manufactured goods; grant preferential and reciprocal access for agricultural products; establish conditions for gradual liberalisation of trade in services and capital, and encourage the economic integration of Mediterranean countries.

The first EMAA, negotiated with Tunisia, was signed in July 1995, coming into effect in March of 1988. The general terms of the EMAAs, there is likely to be very little variance across countries. At the time of writing the specifics of the EMAA between Egypt and the EU were still under negotiation, but the available drafts suggest that the agreement will closely resemble that of Tunisia. The EMAA is unlimited in duration and is to be implemented over a 12-year period.

4. THE MFTZ' S POTENTIAL IMPACTS ON TEXTILE SECTOR GROWTH IN EGYPT

4.1. Europe's Textile Imports on the Increase

It is expected that the rate of imports of the EU's textiles and garments will increase due to both the ATC and EU-Mediterranean agreements, and some believe that this increase will reach 55%-64% in the year 2005 (Textile Outlook International, Textile Industry, 1996). While, official figures show an expected decrease in the manufacturing of textiles and garments of 2% per year due to the increase in the outward processing trade. Sub-contracting opportunities for Egyptian producers with EU contractors are seen as a potential source of additional sector growth. Subcontracting increased Central and Eastern European exports to the EU by 26% between 1989 and 1993 (Hoekman, 1995). Mexican-US subcontracting in the textile sector increased sharply following the North American Free Trade Agreement (NAFTA).

Some experts and managers interviewed for this study claim that signing of an MFTZ agreement will also give a boost to the textile sector in the long term through the increase of the competitiveness of the local manufacturers. Structural inefficiencies have prevented Egypt until now from taking advantage of its relative comparative advantage, which it should naturally have due to the sector's very low labour costs.

4.2. EU Technical and Financial Assistance

The principal financial instrument of the European Union for the implementation of the Euro-Mediterranean Partnership is the MEDA-grant programme. It accounts for US$3.8 million out of the over US$5 million of the budgetary resources allocated for the financial cooperation between the EU and the Mediterranean partners for the period of 1995-1999. The EU supports the economic and industrial transition in Egypt with some key programmes providing a total grant funding of about US$ 385 million through:

The Private Sector Development Programme.
The Public Enterprise Reform and Privatisation Programme.
The Banking Sector Reform.
The Industrial Modernisation Programme.

The Private Sector Development Programme will offer financial assistance and other services to a wide range of private sector enterprises. All of the small and medium sized enterprises interviewed for this study were aware of the existence of the programme's activities. Half were already engaged in them, while the other half indicated a desire to apply. According to the Egyptian Minister of Industry, the Industrial Modernisation Programme will focus especially on the textile sector. European management and consultancy firms will be hired to inform Egyptian firms about the EU market.

4.3. An Export Boom ?

Export prospects are becoming a major concern for Egypt given the new international trade environment. The appointment of Dr. Youssef Boutros Ghali, a liberal, open market, free trade advocate as Minister of Foreign Trade is expected to increase Egypt's focus on world trade. Imports are due to increase, but serious reductions in export costs and burdens are on the agenda, including a law alleviating several types of taxes on exporting enterprises, expected to come into effect in 2000. Textile factories are said to be the most obvious beneficiaries. In addition, infrastructure projects, such as new port construction to handle EU-Mediterranean trade is also expected to facilitate an increase in overall and regional exports. Increased exports specifically in textiles may be expected due to the following.

4. 3.1. Flow of Foreign Direct Investment (FDI) from Europe to Egypt

Transfer of factories from Europe to the region due to incentives by the Egyptian government is expected, especially after the signing of the Euro-Med association agreement (World Bank, 1998). The World Bank figures show an overall increase in FDI to Egypt of 55 % since June 1996, and projected a US$2 billion annual amount for the next 5 years. Much of this investment is expected from the EU as Egypt adopts a more Euro-friendly investment climate and regulatory structure in line with the EMAA. Already European firms have been actively investing in other major industries in Europe.[22] Technology from new investments is generally assumed to be better than local technology (and thus less environmentally harmful), however, there remains a chance that leaner environmental legislation implementation for manufacturing in Egypt and Egypt's geographic location may also play a role in attracting less desirable FDI.

4.3.2. Restructuring and Privatisation of the Public Sector

The Egyptian government is determined to boost textile industry to capitalise on its relative comparative advantage. An ambitious programme by the Ministry of Industry for boosting Egyptian industry places the textile sector as its prime target since it represent the highest value added.

The public sector textile companies are being restructured and prepared for privatisation. Three unprofitable holding companies for textiles comprising 28 large state owned enterprises are due to be sold before the end of 2001 according to the minister of Public Affairs, Mokhtar Khatab (Alam Al-Youm, 1999). Most Egyptian

[22] Recent developments in cement industry include the purchase by some of the biggest European cement producers like Lafarge (France) and Blue Circle (Belgium) of two of the largest Egyptian cement factories, contributing to an impressive 10 % annual growth rate for the sector.

privatised companies showed increasing revenues and increasing exports from exports after being privatised. Khattab also announced (Al-Ahram, 2000) that half of the total privatisation revenues will be directed towards restructuring the enterprises, mainly in the textile sector.

5. CHALLENGES TO THE EGYPTIAN TEXTILE INDUSTRY

5.1. Market Characteristics

Despite new potential which the MFTZ process may bring, there are several obstacles which still remain in terms of Egypt exploiting a Euro-Med market. For one, equipment in the textile sector in Egypt is quite old. Second, Egypt will face aggressive competition from the central and eastern European countries which have cheap labour, geographical proximity to the EU and several of which will be EU members soon. Third, rules of origin vis-a-vis market entry to the EU remain quite complicated and may serve as a barrier. Currently inter-regional trade among southern Mediterranean partners is quite limited, due both to trade barriers to protect domestic industries and to similar comparative advantages. Changes in the system regulating cumulation of origin under a regional free trade agreement could possibly alleviate this problem and promote intra-sectoral specialisation among Mediterranean countries, however, for the time being, rules of origin remain an obstacle.

The EU is Egypt's largest trade partner, both in terms of imports and exports, however, the relative importance of Egyptian textiles for the EU market is minimal (3% of total). The EU-Egyptian trade balance clearly favours the EU. Despite this, the EU has initiated anti-dumping measures against Egyptian textile (cotton fabric) exports already twice since 1997. In both cases, the European Council rejected the accusations against Egypt and removed the compensatory tariffs imposed on the Egyptian exports, however, the incidents caused real economic damage to Egyptian companies and has created a feeling of uncertainty regarding the reliability of the EU market.

5.2. EU Environmental Regulation & Egyptian Textile Exports

5.2.1. Environmental Legislation

Environmental legislation of importance to exporters of textile products to the EU is largely the area of Product Standards. While several such standards exist, for the purposes of this study, we will concentrate on two main aspects of legislation concerning Product Standards for textiles, both concerning the environment:

The ban of Azo dyes
The ban of PCP (Pentachlorophenol)

Germany has direct bans on azo dyes and PCP. Following this lead, it is expected that 80% of types of azo-dyes will be banned in all countries of the EU by 2005. If generalised on the European level, the impact of such bans will be economically tough on textile producers. For example approximately 70% of all dyes currently used by the textile industry in Egypt are azo dyes. They are brilliant, give adequate fastness and are inexpensive while more eco-friendly substitutes are more expensive and not as effective in providing a satisfactory final product.

5.2.2. Environmental Instruments

Voluntary practices by business to undertake environmental instruments of various natures are becoming common trading practices and marketing tools. Of these, Eco-labels and Environmental Management Systems such as ISO 14000 are most important to exporters to the EU. Eco-labeling implies the use of labels in order to inform consumers that a product is determined by a third party to be environmentally more friendly relative to other products in the same category (UNCTAD, 1994 definition). Eco-labels are thus awarded by a third party for products which meet preset environmental criteria. Producers can apply for such labels on a voluntary basis. Eco-labeling – though to date still voluntary – has been described as a potential threat to developing countries' exports as the new product categories covered by such schemes are of great export interest to these countries (for example textiles and footwear), however, certification costs can serve as barriers of entry into the eco-labeled market (UNCTAD, 1994).

ISO 14000 is also largely seen as a market barrier, especially in sectors like textiles where the majority of producers are small and medium sized enterprises (SMEs) who generally cannot afford certification – which

may include costs of eco-friendly chemical substitutes, capital costs for necessary equipment and/or additional labour, and the costs of testing and verification itself. Thus, they risk being closed out of the EU market as more and more ISO 14000 certified firms in the EU seek to ensure certification along all of their supply chain.

SMEs are also at a disadvantage in terms of acquiring the information necessary regarding both environmental regulation and environmental instruments (see for example, Vossenaar and Mollerus, 1996; or Variria with Barrera and Sanchez, 1996). In surveys undertaken for this study, most Egyptian companies knew nothing of eco-labeling programmes, or environmental management standards. Estimates as to cost increases to enter such niche markets varied greatly and were based on guessing. Only one company actually uses an eco-label. Awareness of technical standards was limited, although bans such as that of azo dyes and PCPs were known.

5.2.3. Egyptian Manufacturers Response

The results of semi-structured interviews show that for now Egyptian producers' awareness and exposure to environmental regulations in the EU (legislative and institutional) are still limited. For the meantime, the majority of the Egyptian textile products to the EU are in the form of yarn, an intermediary good, which involves some of the most environmental hazardous stages of production, bleaching and scouring. Production in later, higher value stages such as ready-made garments, is less environmentally damaging.
Adjustment to basic EU environmental regulations might not necessarily constitute a serious additional obstacle to small-scale Egyptian producers who represent the majority of the producers, simply because their role lies beyond the most serious environmental hazardous stages. Eco-labeling and environmental management systems, however, cover both final goods and production process methods and thus may still be a barrier to market entry.

Given its textile export structure Egypt cannot afford to choose non-compliance to the EU's environmental constraints mainly because of lack of substitute markets of the same size. Local institutions will thus have to guide producers in that direction and take actions to reduce the transaction costs they face if Egypt intends to compete in the EU market.

There are no guarantees that Egyptian exporters can successfully complete export transactions to the EU even if they meet all the required conditions, including environmental standards. In fact, given the complex nature of the recently introduced environmental regulations and the loose definitions of many of the items involved, potential problems with the EU on grounds of environmental considerations are quite possible. Moreover, based on the distrust on the Egyptian side regarding the issue of what is perceived as unfair EU anti-dumping measures against Egypt, there is a feeling in Egypt that technical standards such as environmental requirements could easily be a new tool to exclude the Egyptian market. Again recent problems related to Egypt's exports of some agricultural products to the EU, also seem to support the above.

6. ASSESSING THE ENVIRONMENTAL IMPLICATIONS THE TEXTILE SECTOR IN EGYPT

6.1. The Textile Industry and its Effect on the Environment

Today, the textile industry is considered as one of the most polluting industries in Egypt. Textile processing generates many waste streams including wastewater effluents, solid wastes, air emissions and hazardous wastes. Among the contributions to wastes generation from the textile industry, liquid wastes are the most serious in terms of severity of environmental impacts. Liquid wastes generated from the various washing operations contain substantial pollution loads in the form of organic matter, suspended matter such as fibers and grease. These liquid wastes are generally hot and alkaline with strong smell and colours from dyeing processes. Some of the chemicals discharged can also have toxic effects on the receiving environment. Discharge of such effluents into aquatic bodies can cause lowering of dissolved oxygen, and thus damage to aquatic life and expose downstream water users to possible toxic effects. An overall deterioration in the aesthetic value of water quality will also result.

6.1.1. Wastewater Generation

The textile industry is characterised by its large water consumption throughout its operations, from the washing of fibers to bleaching, dyeing and washing of finished products. On average, worldwide

approximately 80 liters of water are required to produce 1 kg of textiles (EPA, September 1996). In Egypt, however, 200 liters are used on the average to produce 1 kg of textiles (SEAM project, June 1999), with some of the larger mills using up to 300 liters per kg. This is due to such factors as old and inefficient equipment, low resource recovery and re-use, low prices for water. The large volumes of wastewater generated also contain a wide variety of chemicals used throughout processing. These can cause damage if not properly treated before discharging to the environment. The aquatic toxicity of textile industry wastewater varies considerably among production facilities. The sources of aquatic toxicity can include salt, surfactants, ionic metals and their complexes metals therein, toxic organic chemicals, biocides, and toxic anions. Most textile dyes have low aquatic toxicity. On the other hand, surfactants and related compounds, such as detergents, emulsifiers, and dispersants are used throughout processing and can cause damage if not properly treated prior to discharge. Of all the steps involved in textiles processing, wet processing creates the highest volume of wastewater.

Almost 90% of Egyptian textile products are cotton yarn (spinning), cotton fabrics (woven and knitted) and apparel. According to the Ministry of State for Environmental Affairs (SEAM project, 1999), most of the textile mills in Egypt do not possess effluent treatment plants. From pollution perspective, there are three parameters that are causing the most worries. These concerns are mainly affecting wastewater effluents:

Biological Oxygen Demand (BOD) and Chemical Oxygen Demand (COD) levels seem to be the most persistent since they far exceed the Egyptian environmental regulation for discharge limits in sewage or in rivers. An audit in three public sector large textile mills in 1995 revealed an average of 900 mg/l of BOD and 1000 mg/l in COD. The Egyptian Regulation for discharge in open water average is 40 mg/l for BOD and 50 mg/l for COD. The Standards in Germany are 40 and 280 respectively for discharge in receiving waters.

6.1.2. Groundwater Consumption and Contamination

Groundwater is being extensively exploited, as this is the main source of water for the textile industry according to the Ministry. The lack of adequate treatment for effluent leads to its disposal to receiving water bodies or on land. This could lead to widespread contamination of the groundwater.

6.1.3. Air Emissions

Coating, finishing and dyeing operations represent the greatest concern as sources of air pollution. Although the textile industry is a relatively minor source of air pollution as compared with many other industries, it emits a very wide variety of air pollutants making sampling, analysis, prevention and treatment more difficult. Textile mills usually generate nitrogen and sulfur oxides from boilers. Hydrocarbons are emitted from the drying process, as are formaldehyde, acids, softeners and other volatile compounds. Solvent vapours are emitted during dyeing, including acetic acid, formaldehyde, and other volatile compounds.

In addition, cotton cultivation accounts for 75% of all pesticides use in Egypt. The chemicals are applied through sprays, thus affecting the air, soil, and water quality of the cultivation area, as well as the health of the rural population.

6.1.4. Solid Wastes

The primary residual wastes generated from the textile industry are non-hazardous. These include scraps of fabric and yarn, off-specification yarn and fabric and packaging waste. There are also wastes associated with the storage and production of yarns and textiles, such as chemical storage drums, cardboard reels for storing fabric and cones used to hold yarns for dyeing and knitting. Cutting room waste generates a high volume of fabric scraps, which can often be reduced by increasing fabric utilisation efficiency in cutting and sewing.

6.2. Waste Management and Mitigation for the Textile Sector

Waste management is absent and wastewater treatment is very primitive if found in the textile industry in Egypt (SEAM, 1999). Wastewater treatment is largely limited to equalisation and chemical precipitation.

6.2.1. Status of the Existing Technology

A common observation in the audited textile mills by the SEAM project team has been the old manufacturing machines in use. Some mills are still in operation with production machines that are over 35 years old. This situation has been encountered more frequently in those textile mills, which belonged to the

public sector. Wet process machines are not much better, with scouring and dyeing machines being generally old and with no water or chemical recycling, and huge losses in steam. Maintenance varies depending on the factory, but for most, there was no consistent maintenance.

6.2.2. Waste Management Practices

The following is a brief overview of the Egyptian waste management in the textile industry:

Wastewater treatment is still very primitive and limited to equalisation and chemical precipitation. In most cases wastewater is collected in one stream and either treated in a wastewater treatment plant in the factory or discharged to the public sewers, whereby local authorities treat it with domestic wastewater. Most of the textile companies discharge their wastewater into a soak way or into drainage canals that dump into the sea, and in a few cases to streams of potable water.

Solid wastes are mostly collected for reprocessing or selling.

Particulates from gaseous emissions (dust or fibers) are collected and reprocessed or emitted into the atmosphere inside and outside factories.

The practices are listed in more detail in Table 2:

Table 2. Current Wastewater Management in the Textile Sector in Egypt

Section	Waste	Composition/Characteristics	Management
Sizing, Desizing	Liquid	Starch-based materials (High BOD)	To public sewers or treatment plant.
		Modified carbohydrate soluble synthetic polymers (low BOD, high COD).	Reused or sold.
	Solid.	Containers	Reused or sold.
Scouring, Mercerisation	Liquid	Dissolved solids(high pH)	Alkalis are recycled
		Suspended solids : - Fibers - Cotton waxes - Wool waxes	Wool wax is recovered, purified and sold Some factories neutralise high pH effluent streams before discharge to public sewers.
Bleaching	Liquid	Low BOD - residual bleaching agents, stabilisers, surfactants and dissolved solids.	Discharge to public sewers. Discharge to wastewater treatment plant.
	Gas.	Chlorine gas and oxides in case of hypochlorite and chlorite bleaching.	Disposed to air.
Dyeing and/or printing	Liquid.	Dyes and auxiliaries, salts and carriers.	Discharge to wastewater treatment plant, public sewers or drainage canals.
	Gas.	Kerosene in pigment. Printing.	Discharged to air.
	Solids.	Dye and chemical containers.	Collected and sold.
Chemical finishing	Gas.	Formaldehyde, carriers, oligomers, ammonia.	Discharged to air.
	Solid	Chemical containers, residual finishing agents, surfactants, acidic pH, softeners.	Collected and sold Discharge to wastewater treatment plant or public sewers
Packing	Solid	Cartons, polyethylene sheets and bags, wrappings, etc.	Collected and sold
Workshops	Solid & Liquid	Scrap metal, used motor oils	Scrap metal collected and sold. Motor oils collected and sold, or refined and reused.
Ready-made garments.	Solid	Fabric due to cutting.	Collected, stored and reprocessed or sold "as is".

Source: SEAM project.

6.2.3. Lenient Law Enforcement

For economic reasons, primarily lack of governmental budget, Egyptian environmental regulations are not enforced. The Ministry of State for the Environment has little done to implement Law 4, a comprehensive environmental law. The textile huge Holdings Companies were already working at loss and the government was reluctant to place on them additional environmental burdens which would come with enforcing proper environmental management. While, now in recovery, they may again be vulnerable if forced to comply with environmental regulation.

6.3. Possible Impacts of an MFTZ

In light of relevant literature (Ministry of Industry forecasts) and conducting interviews with managers in different segments of the total textile sector concerning their future prospects, we calculated an average of 2-3 % annual growth of the textile spinning and weaving sector exports and 4 % for production in the next 5 years. This was assumed to lead to 2.5-5% average annual growth in exports and 5% for production between 2005 and 2010. The managers assumed difficulties for the next five years due to various market constraints, as discussed earlier. Last year growth in the whole textile sector production grew by 3.3% (against 11% for the whole manufacturing sector). Then they expected a boom when producers become accustomed to EU environmental regulations and when quotas are totally abolished.

The growth is expected to affect all sub-sectors within the industry, although much more for the clothing segment as the country tries to increase higher value added production. When quotas are abolished, the clothing and household sub-sector which is showing rising competitiveness is assumed to grow by an average 10% annually for the next 10 years, mainly due to expansion in the EU markets. This tendency was assumed according to the actual pattern of growth. In 1998, this sub-sector's exports to the EU grew by almost 50% according to ETMA. The environmental impact of such growth in the textile segment could be very detrimental if not well managed, and currently actual status is not encouraging.

6.3.1. Environmental Impacts

There is little willingness and awareness towards minimising the potential positive environmental impact of stricter European regulation. European regulation (legislative or instrumental) will positively influence Egyptian producer in the long run. No noticeable adjustments are being made for the time being to meet European environmental regulation. Attempts to qualify for environmental certification would be enhanced once it is believed that the premium price would justify it, but today, the willingness of producing companies to monitor the environmental impact of their industries and take positive steps towards reducing its negative impact found it to be limited.

Only 13% of a sample of 30 textile exporting companies interviewed had departments or units in charge of controlling or estimating environmental impacts of production (Abdel-Latif, 1999). In contrast 60% had departments for research and development with the purpose of improving the quality of products. The latter does not necessarily take environmental impact as one of its parameters. Along the same lines 90% of the sample responded negatively to having international environmental regulations as a factor affecting new investments in their companies.

Efforts to meet environmental standards despite being involved in exports was also found to be limited. Only 10% of the companies interviewed confirmed having the ISO 9000 certificate, and only one company (3% of the sample) confirmed knowledge of eco-labeling and ISO 14000 and is using the latter. According to one survey environmental management systems and/or eco-labels are applied by less than 5% of firms (ETMF).

The textile sector, especially the clothing sub-sector is predicted to grow, both as a result of the Euro-Med process as well as general liberalisation of the economy in Egypt. For the short term at least, EU legislation on product standards and programmes such as eco-labeling and environmental management will have a relatively minor impact on reducing actual environmental impacts in Egypt.

If the EU-Egyptian EMAA and the MFTZ process leads to increased foreign direct investment in the Egyptian textile industry, then improved equipment may lead to increased efficiencies, especially in terms of water and energy consumption per unit of production. If the current practices are simply expanded, as is

likely if increased exports to the EU simply involves subcontracting, then current environmental impacts are likely simply to increase at rates compatible with increases in production.

According to economic experts, as well as relevant literature (FEMISE, 1999) and (Hoeckman 1997), the EMAA to be signed with Europe will lead to deregulation, accelerate economic liberalisation and privatisation. In terms of environmental impacts privatisation of large textile mills may bring increased production efficiency, a potential environmental gain. Theoretically, with large mills under private control as opposed to governmental control, there may also be a greater willingness on the part of governmental authorities to enforce environmental regulation, although such an outcome is not guaranteed, and current enforcement of private sector practices is not encouraging.

As stated earlier, production and exports of clothing are increasing in higher rates than for cotton yarns and textiles due to the relative competitiveness of the private sector. Many European and other international brand names have now subcontractors in Egypt, such as Marks and Spenser, Mexx, Benetton, Daniel Hechter, and others. This trend seems to be extended to other brands now in negotiations for subcontractors, and as stated, the Egypt-EU EMAA is expected to give an additional boost to the clothing industry.

The manufacturing of clothing gives rise to fewer environmental problems than the manufacture of fabrics or yarns. Clothes manufacturing, which involves design, cutting, sewing, assembly, pressing, finishing, give rise to relatively limited environmental concerns, except for buttons and zippers which contain toxic heavy metals, and increases in production are assumed to be manageable.

6.3.2. Social Effects of Deregulation

Deregulation, to accelerate economic liberalisation and privatisation. This will have an impact on the workers in the textile sector. According to the Ministry of Public Enterprise, textile public enterprises, accounting for more than 60% of employment in the sector need only 50% of their workers. The destiny of this surplus after full privatisation of the 31 public companies by 2001 is still undecided.

Cotton agriculture is mainly dependent on children below 12 years for cotton gathering during the harvest seasons. It is estimated that 300 thousand child work in this activity. An expected decision to cultivate more cotton could involve more child labour.

Workplaces safety and health is a serious concern in the textile industry in Egypt. Site visits to workplaces of this nature showed overcrowding, poor aeration and a grave lack of safety measures. Accidents are frequent and fire control systems are often not operational. Many workers in private sector clothing industry have very bad work contracts with poor social security. They are sometimes obliged to write their resignation (and a paper saying that they decline to any rights) while signing their work contract. It was noticed, however, that working conditions for the EU or other international markets are generally better than those producing for the local market, thus increased privatisation may be cause for concern regarding workers rights and work condition, however, an increase in EU designated production may offset such a trend to some extent.

7. RECOMMENDATIONS

7.1. Enhancing the Benefits of Complying to EU Environmental Conduct

Strict environmental regulations in the EU on product standards will create an additional push factor to better environmental performance on the production end. Given its textile export structure and the size of the EU market, Egypt cannot afford to choose non-compliance with EU environmental regulation. Local institutions have to thus guide producers in that direction and take actions to reduce the transaction costs they face. Leaving things to individual decisions will probably discourage exports altogether and direct producers towards selling in the local market.

A high level of cooperation is needed at the level of local institutions for the above plan to work. Local institutions in the case of Egypt include: the Ministry of Industry, the Ministry of Economy and Foreign Trade, the Federation of Industries, ETMF, Export promotion institutions, the Textile Consolidation Fund, and private producer's or businessmen's associations and non-governmental environmental institutions.

As seen, the effect of regulation could be detrimental to exporters if an environmental upgrade does not take place. The real problem lies in finished textiles:

One. They are subject to the most demanding environmental constraints.

Two. They can cope with the environmental legislation in Europe with more difficulty because the vast majority of these products are produced by small and medium enterprises (SME).

Suggested programmes to assist in this matter, which can be implemented unilaterally or preferably incorporated into Euro-Med funded projects include:

Assisting Egyptian producers and exporters to qualify to Environmental Management Systems like ISO 14001 or textile eco-labels and to abide by European legislation. The limited number of firms in the region utilising these systems seems to indicate that their sales pay off their environmental investments.

Establishing an information network on international standards for EMS and product eco-labels, as well as for legislation concerning product standards.

Providing technical support and training on such standards.

Enterprises seeking to introduce new machinery or replace old machinery must find out the best available technologies, and which equipment will best conform to EU regulations. They have also to be advised on the sources of reasonably priced friendly (or not banned) dyes.

Vertical integration of companies should be encouraged as it facilitates the following of the life cycle of the product and has proved to be more successful with compliance of environmental regulation (EPA,1996).

In terms of capacity building, the ministry of Environmental Affairs could establish a unit within it to develop and strengthen its relationship with the private sector, especially with SMEs. This Unit could deal with the following:

- Promoting the Greening of the Egyptian Trade, by encouraging the implementation of programmes for cleaner technology actually working on the textile industry with the support of European or other European organisations.
- Dissemination of information on environmental product standards in Export Markets (could be done with the Support of the EU).

Upgrading existing standardisation bodies, or creating new ones to conduct testing and certification verification. This could be done in a regional approach.

Arranging long term credit at concessional terms to enable firms, especially SMEs to comply with environmental measures. This could be through environment funds, or through the European Investment Bank already involved in programmes to upgrade the industry in the southern Euro-Mediterranean partner countries.

7.2. Application of Egyptian Environmental Legislation and Governmental Capacity Building

Egypt has a strict environmental law concerning industrial wastes, however, it is not implemented for economic and technical reasons.

A serious and well equipped monitoring body should be created in the Ministry of Environmental Affairs to tackle this problem. A small unit exists now, but lacks the needed skills, resources and political backing to effectively carry out its tasks.

The Ministries of Environment needs to build internal capacity in terms of monitoring and addressing industrial waste.

Extensive research and analysis to determine environmental impacts of governmental and industrial policies for future growth. This will help the Ministry of Environmental Affairs to adequately plan, particularly regarding industrial waste management, and the preservation of natural resources.

7.3. Reducing Taxes on Treatment Equipment

Reduction of taxes on equipment has been a constant demand by companies trying to comply to the Egyptian regulations. The import of such environmentally beneficial equipment should be made a priority for customs reductions within the EMAA and other taxes should be reviewed and restructured to lower costs.

7.4. Environmental Assistance through MEDA

The MEDA is the principal financial instrument of the EU for the implementation of the Euro-Mediterranean Partnership. Although it has a programme for the environment, other programmes receiving MEDA support for private sector adjustment such as the Industrial Modernisation Programme, should focus more on improving environmental aspects of the production. The IMP should finance sound investments for environmental upgrades. It is now limited to consultancies for industrial upgrades.

7.5. Establishment of a Permanent Environmental body for the Euro-Med Partnership

In light of the probable effects of the economic policies of the Euro-Mediterranean Partnership it is recommended to establish an official body to monitor the environmental developments underway in the region for various economic sectors.

Jordan's Phosphate Sector: Implications for the Environment of Euro-Med Trade Liberalisation

by Jordan Society for Sustainable Development (JSSD)[*]

1. INTRODUCTION

Both in terms of revenues and employment the phosphate industry is an important economic sector for many southern and southeastern Mediterranean countries, including Jordan. The industry is also thought to be among the world's most pollution intensive. Its environmental impacts include high consumption of water and electricity, air and marine pollution, changes to landscape and others. Economic restructuring and trade and investment liberalisation currently being implemented in the Mediterranean region is having significant impacts on the structure and operations of the phosphate industry. This study aims to analyse environmental implications from such economic restructuring as it concerns the Jordanian phosphate industry, especially that resulting from Euro-Mediterranean Partnership's plans for a regional free trade zone.

The study covers the production and trade of phosphate as well as that of phosphate-containing products such as fertilisers and industrial chemicals. It will present a brief survey of the industry in Jordan, followed by an estimation of possible impacts of the policies leading up to the establishment of a Mediterranean Free Trade Zone (MFTZ), as called for under the Euro-Mediterranean Partnership. A description of the current environmental impacts of the sector is then presented followed by an analysis of how changes in production will affect the environment. Finally, a series of recommendations are given for avoiding or minimising predicted negative effects.

It must be stated from the beginning that the study encountered difficulty in isolating expected impacts of the economic and trade policies of the Euro-Med, from similar and even over-lapping policies being implemented in Jordan as part of structural adjustment and trade liberalisation programmes promoted by the International Monetary Fund (IMF), the World Trade Organisation (WTO), and other institutions. Thus, some of the analysis is necessarily broad and refers to trade liberalisation in general, to which the Euro-Med policies contribute.

2. THE PHOSPHATE INDUSTRY

The Phosphate based products considered for the purpose of the study are the following:

1. *Raw Phosphate Rock*: Phosphate rock is exported directly and is used as a raw material for many industries. This product constitutes Jordan's single most important export item.
2. *Phosphate-based Fertilisers*: 80% of phosphate rock is used in the production of mineral fertilisers.[23] The primary phosphate materials for these fertilisers are raw phosphate rock and phosphoric acid.
3. *Chemicals for Industrial Purposes*: 20% of raw phosphate is used to make detergents (12%), animal feeds (5%), speciality applications e.g. food grade and metal treatment (3%), and other miscellaneous applications.

The key environmental specifications for phosphate products are levels of radioactivity and heavy metal content, especially cadmium, but also zinc, chromium, vanadium and others. Other technical specifications such as grindability and corrosion levels are also of importance from a production viewpoint.

The production of phosphate and phosphate products is a major industry for several south Mediterranean Euro-Med partner countries. The Mediterranean region produced 46.3 million tons of phosphate in 1998, representing 33.6% of total world production. Seven counties in the Mediterranean region are among the top

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[23] This includes MAP/DAP & other NP compounds which constitute the other main item produced and exported by Jordan. There are other phosphate-based fertilisers manufactured worldwide that are not produced in substantial quantities in Jordan and not considered in this study.

15 phosphate producing countries, chief among which are Morocco, Jordan, and Israel. As of 1998, about 25% of world phosphate production was exported in raw or semi-processed form, down from 35% in 1983. This drop is due to the increase of production of downstream products at or near the mine sites and the shipment of those upgraded products. Collectively, the EU is the single largest importer of phosphate products. Western Europe as a whole imported 9.3 million tons (29.7% of total world trade) in 1998, although its share is declining along with overall declining trends in fertiliser use.

3. PHOSPHATE IN JORDAN

The phosphate industry is of particular economic and social importance for Jordan. In 1996, sales of Jordanian phosphate and phosphate products were worth roughly US$360 million (MoP, 1999), or roughly 5% of the total Gross Domestic Product (GDP). Jordan has proven phosphate reserves of nearly 1.7 billion tons. All of phosphate excavation is handled under a long-term renewable monopoly concession granted to the Jordan Phosphate Mining Corporation (JPMC), of which the Jordanian government owns a majority share (69%), with other Arab governments and the private sector holding the rest (19% and 12% respectively). Yearly production of phosphate stood at roughly 6 million tons in 1999, most of which was designated for export. Annual production reached a peak in the 1989 at 6.7 million tons, but decreased sharply in the early 1990s due to a decline in world demand and due to restricted flows of traffic through the Red Sea port of Aqaba, Jordan's only seaport, as a result of the Gulf War. Production has been increasing since 1994, however, and is projected to continue to increase to levels of 10 million tons per year by 2005, after which production is projected to remain relatively steady (JPMC, 1998).

Currently the JPMC operates three separate mines – the Hasa, Abyiad, and Eshidiya mines – all in Jordan's southern region, the nation's poorest. The company is progressively phasing out production in the Hasa and Abyiad mines, and expanding production at Eshidiya, which is planned to account for almost all production by 2006. The JPMC is one of the largest industrial employers in Jordan. In Jordan, the mining sector as a whole accounts for 7% of the country's total industrial employment. Following government regulation, the JPMC actually over-employs for reasons of social welfare, and thus has relatively high administrative costs and lower than average worker productivity ratios. Average income for workers at the JPMC is US$450 per month, as compared to US$200-250 for average non-mining work in the same region, making it an attractive source of employment in the South.

Jordan is the world's second largest exporter of phosphate, accounting for 15-18% of world phosphate trade, and trailing only behind Morocco. In terms of importance to the Jordanian economy, the mining industry (including both phosphate and potash) represented nearly 37% of total Jordanian exports in 1996. The traditional markets for Jordanian phosphate include India, Indonesia, the Netherlands, and Australia. As a whole, the EU accounted for 21% of all Jordanian phosphate exports in 1996, however, following a general decreasing trend in phosphate fertiliser use in the EU, the share declined to just 11.6% of total phosphate exports in 1998 (JPMC website). Jordan's lack of a Mediterranean port means that it suffers from a relative disadvantage in serving the European and southern Mediterranean markets in comparison to competitors such as Morocco or Israel due to higher transportation costs.

Currently Jordan primarily exports raw phosphate, phosphoric acid, and low grade fertilisers. Such products have a relatively low value-added. The industry as a whole earns merely 3% value added on its products, as compared to an average of 16% in manufacturing, or even 6% in agriculture (MoP, 1999). As of 1996, the country's sales of 4.4 million tons of raw phosphate generated slightly less revenue than the country's sales of 0.7 million tons of basic fertilisers and chemicals. It is estimated that if Jordan exported only phosphate fertilisers and other processed phosphate-based products instead of raw phosphate, it could increase sales revenues by a factor of nearly four, to over US$1.4 billion (ibid, 1999). Phosphate, as a raw commodity, is also subject to drastic fluctuations in market price – between 1990 and 1996 average price fluctuations exceeded 5% annually, with annual price swings sometimes reaching 10%. In order to increase value-added and to insulate itself from market shocks, Jordan is planning on increasing production of downstream products, such as higher grade fertilisers and pure chemicals.

Jordan has already constructed and upgraded several industrial complexes for fertiliser production. Currently the primary destinations of Jordan's exports of phosphate-based fertilisers are South Asia and the

Middle East. This is due to the proximity to the markets via Jordan's Aqaba port, and the demand in these countries for basic fertilisers, as opposed to more developed markets such as the EU were higher grade fertilisers are more in demand. Jordan benefits from several comparative advantages in terms of potential for advanced fertiliser development, however, including high quality phosphate and a large and well developed potash industry, which produces several raw materials and chemicals used in combined complex fertilisers.

4. JORDAN'S PHOSPHATE INDUSTRY AND THE EURO-MED FREE TRADE ZONE

4.1. Structural / Sectoral Reforms

Beginning in the end of the 1980s, Jordan embarked on a policy path of economic liberalisation. Major initiatives in this respect include

- Structural Adjustment Programmes undertaken by the government under advisement of the International Monetary Fund (IMF),
- Reforms taken in the late 1990s in order to join the World Trade Organisation (WTO),
- Membership in the Euro-Mediterranean Partnership, including the drafting of a bilateral association agreement with the EU and commitment to participate in the regional free trade zone to be established by 2010, and
- Commitment to participate in the Arab Free Trade Area (AFTA).

Much of the structural reform, including tariff reductions, investment liberalisation, harmonisation of industrial standards, and establishing regulation ensuring intellectual property rights are policies called for under several or even all of the various frameworks, and so it is difficult to isolate the effects of only one of these institutions/programmes.

In terms of the Euro-Med, Jordan signed an association agreement with the European Union in 1997 which is, as of the time of publication of this study in June 2000, still undergoing ratification. According to the agreement Jordan will progressively eliminate customs duties on imported manufactured goods from the EU. Jordanian manufactured goods already have unilateral duty free access to the EU market and will continue to under the association agreement. In accordance with both the Euro-Med and the AFTA programmes, Jordan is also liberalising its trade with other countries in the Middle East/North Africa region. In terms of the country's phosphate sector, the Euro-Med Partnership offers potential to attract European investment and market contacts, advanced technology, and access to finance from the European Investment Bank and other European financial institutions. Furthermore, should a regional free trade zone lead to a possibility for Jordanian products to be exported via Israeli or Palestinian ports without customs fees, transportation costs for the sector could be substantially reduced.

In addition to a desire to penetrate the current EU market, the expansion of the EU to include countries of Eastern Europe should afford the Jordanian phosphate industry a larger market. Currently Jordanian exports of phosphate and phosphate fertilisers to the Eastern European countries awaiting accession to the EU are sporadic and negligible economically. The expansion of the EU will mean duty free access to countries which are likely to emphasise their comparative advantage in agriculture in supplying Western Europe, and thus will be in need of high grade fertilisers.

Because of expenditure pressures stemming from a large reliance on exports of raw materials with little value-added, a high share of administrative costs in the company budget, high mining fees, and possibly also due to a sense of complacency at being a government-owned monopoly, the Jordanian mining industry as a whole invests relatively little in research and development (R&D), including in market research. Overall R&D expenditures equal only 3% of net sales - only $1/12^{th}$ that of neighbouring Israel, for example, where the share of R&D equals 5.4% of sales (MoP, 1999).

Due to the relatively low shares of R&D and its relatively small emphasis on downstream product production until now, the Jordanian phosphate industry is therefore interested in attracting additional investment and possible joint ventures with foreign firms. Based on discussions with officials involved in the phosphate industry, the government and industry believe that such capital and joint ventures with international firms will bring:

- The introduction of modern technologies with high efficiency of raw material use.
- Improved chances for entering a highly developed fertiliser markets in the EU countries, Eastern Europe and the developing countries of Asia and possibly Latin America, as these international firms are believed to have advanced logistics and distribution networks.
- Development of local labour skills in Jordan through training with the skilled and trained labour of theses international firms.

In line with this policy, the Jordanian government has already taken several measures to attract such investment including:

- Fertiliser products of joint venture projects are exempted from the governmental mining tax of US$7 per exported ton of fertilisers for 5 years from the start of production.
- The maximum custom duties on exported industrial by-products was reduced to 10%. This condition will reduce the cost of importing some of the by-products used in manufacturing certain fertilisers.

4.2. Product and Marketing Competitiveness

Currently factors discouraging investment in Jordanian phosphate and fertiliser industries include market disadvantages such as high production costs, and, in the case of businesses interested in capturing European or Mediterranean (or indeed, other non-Asian) markets, relatively high transportation costs as compared to Jordan's competitors for these markets. In addition to the regulatory and policy changes initiated to attract foreign capital mentioned above, there are certain technical specifications which could specifically influence European investment decisions. The quality of Jordanian phosphate may give it an advantage over other Mediterranean competitors vis-a-vis the European Union market which has strict standards for such specifications as radioacitivity and heavy metal content. The primary element affecting radiation is uranium, while cadmium is the most prominent heavy metal in phosphates. Radioactivity is known to mutate body cells and cause malformations and cancer, while cadmium at excess concentrations is thought to lead, inter alia, to disruption of the renal functions and cause anemia.

The uranium content of Jordanian phosphate ranges from 42.6 to 69.8 parts per million (ppm) depending on the mine, falling within the 80 ppm maximum limit on uranium content given in the EU Council Directive 96/29. The Eshidiya mine has the lowest uranium content of all three active mines, and as mentioned this mine is to supply the overwhelming share of Jordan's future phosphate production. In the production of phosphoric acid and other chemicals, the concentration of radioactive elements increases, however, and so products based on some of these products may exceed maximum EU standards and need to be treated if they are to enter the EU market. While treatment costs are substantial, high radiation standards should not negatively impact Jordan's competitiveness.

The maximum limits for cadmium content in fertilisers in Europe vary between 22-150 milligram per kilogram of phosphoric acid (which translates into 50-344 mg/kg of phosphate (al-Zubi and Mansur, 2000) with the highest standards in the Scandinavian countries. Cadmium content in Jordan phosphate rock ranges from about 6-12 ppm, which generally falls below the EU maximum levels. Some phosphate at the Eshidiya mine exceeds EU limits and products using this phosphate (e.g. phosphoric acid) would have to be treated to reduce cadmium levels. There are several known methods for cadmium removal, ranging in cost from US$6.7 per ton to US$39 per ton. The removal of cadmium would raise the price per ton of fertiliser produced by an estimated 1.9-4.6% depending on the method chosen. Due to the relatively high quality of Jordanian phosphate, it is assumed that the cheaper technologies will be sufficient for cadmium removal. While overall costs of the phosphate-based fertilisers would rise, because the rates of cadmium in Jordanian phosphate are low it is believed that Jordan will maintain a significant competitive advantage in this sphere over its competitors for the European market including the Eastern European countries currently in the EU accession process.[24] Such an advantage will help to compensate for high production and transport costs.

[24] The authors were unable to obtain precise figures regarding cadmium content levels in Jordan's competitors' phosphates, however, discussions with officials in the phosphate industry stated that Jordan had a significant advantage in this respect over its

It is also important to note that while the EU radioactivity and cadmium standards are in place to protect environmental quality within the EU, the processing necessary to refine phosphate products to EU standards means additional water and energy consumption in Jordan. In a situation in which inputs are not properly priced, such as is the case in Jordan, higher standards in Europe mean environmentally damaging practices in MPCs.

In terms of impact on competitiveness, if, for theoretical purposes, one assumes that Jordan will reach the same ratio of exports to Europe as that achieved by its competitor Morocco, the resulting sales would be as follows:

For fertiliser, if Jordan claims a market share proportional in terms of its production capacity with competitor, the expected sales of fertiliser to Europe would rise from zero (current sales) to 1.2 million ton per year, given an average price of US$241 per ton, representing total sales of US$290 million. If, for rock phosphate, an assumption is made that Jordan will match its competitors in ratio of exports, this would result in a rise in exports from 0.5 million tons (1998) to 1.25 million tons per year, representing sales of US$53.8 million, given an average price of US$43 per ton. Thus, Jordan has a great incentive to address the European market, and preferably with processed phosphate fertilisers and not raw phosphate.

4.3. Preliminary Results in Attracting Investment

As stated, it is hoped that the Euro-Mediterranean economic partnership in particular will help attract European finances and investment as a result of the expected improved financing options and resources, favourable investment climate, improved local regulations, and product and market conditions. While until recently Jordan's phosphate industry had not benefited from much European investment, it already has some empirical backing for its optimistic view of the possibilities stemming from the Euro-Med Partnership. In fact, the majority of European Investment Bank (EIB) loans to Jordan within the framework of the EIB's lending mandate under the Euro-Mediterranean Partnership have been to support the mining and mineral process sectors (either phosphate or potash), including all five such loans approved between January 1999 and June 2000. The EIB states that these loans were granted under its Euro-Med mandate "to facilitate the economic transition in preparation for the Free Trade Zone between the EU and the partner Mediterranean countries foreseen for 2010." (EIB, 1999).

The following is a brief list of economic developments in the phosphate sector which have benefited directly from the Euro-Med.

- The European Investment Bank (EIB) has granted the JPMC two loans of 30 million Euro each to support expansion of phosphate production capacity at the Eshidiya mine. The project which is also receiving funding from additional sources is to increase production capacity by 36%. The loans were made in 1999 and 2000.

- Kamri-Agro, a company from Finland, is initiating a joint venture with Jordan's Arab Potash Company to establish an industrial complex in Aqaba to produce chemicals, including phosphate-based chemicals, for the production of fertilisers. The project's estimated worth is US$95 million, and it is expected to have a yearly production capacity of 175,000 tons of dicalcium phosphate, 150,000 tons of potassium nitrate, and 100,000 tons of nitric acid. Under its Euro-Med mandate, the EIB supported this venture with a 30 million Euro loan in 1999.

- A 30 million Euro loan package was granted by the EIB under its Euro-Med mandate to expand the Aqaba port, in order to accommodate increases in "traffic [which] is expected to grow in the near future, following developments in the mining and chemical industries" (EIB, 1997).

Other recent investments indicate that European private sector is growing more interested in the mining sector in Jordan and that a trade agreement would facilitate such investments:

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major competitors. It should be noted, however, that if world standards are raised to European levels, the cost to Jordan could be significant, as under current circumstances Jordanian phosphate with higher cadmium content is sold to non-European markets.

- The Norwegian-based Norsk Hydro-Agri company is now initiating a US$650-700 million investment project in partnership (60/40%) with the JPMC to expand production of phosphate-based fertilisers. This deal was finalised at roughly the same time that a free trade agreement between Jordan and the European Free Trade Association (EFTA), to which Norway belongs, came into effect. The project will establish two new plants, one near the Eshidiya mine to produce of phosphoric acid, with a capacity of 440,000 tons per year, and another in Aqaba to produce over 1 million tons per year of phosphate-based fertilisers (NPK & DAP). This project is expected to consume roughly 1.5 million tons of phosphate rock per year, beginning in 2001 (JPMC, 2000). Two EU-based companies (German and French) were among the final three contenders for contracts to handle actual construction of the project's facilities (Skold, 1999).

- A 25-year concession agreement to upgrade and operate the Aqaba Railway Corporation worth US$20 million was finalised in 1999. While the winning international consortium is led by a US firm, it contains an EU partner (Greek). The project comes as a direct result of Jordan's economic liberalisation programmes to privatise state industries. The railway will primarily serve the Eshidiya mine, transporting phosphate and phosphoric acid to the Amman fertiliser facilities.

Other initiatives, such as a recent Danish-Jordanian joint venture in production of potassium nitrate for use in fertilisers, demonstrate further that EU investment and finance of the sector has taken a recent up-turn. While it is difficult to say how much of this investment and financing would have occurred even without a Euro-Med trade programme, it is certain that the programme has already begun to contribute to the development and expansion of Jordan's phosphate industry, both directly, in terms of EIB loans, and indirectly, in terms of contributing to structural and policy reforms which may be conducive to European investment.

5. ENVIRONMENTAL IMPACTS OF THE PHOSPHATE SECTOR IN JORDAN

Mining and processing of phosphate has serious impacts on the natural environment of the south of Jordan. The sector is a huge consumer of water and electricity, which it receives at concessional rates. Jordan's phosphate and fertiliser sectors together currently consume an estimated 35.4 million cubic meters (mcm) of water, over half of all industrial water consumption in Jordan. As the mines and production facilities are located in the country's dry southern region, local water supplies are particularly scarce. Water withdrawal at the mines currently in operation is already far in excess of natural replenishment rates of the groundwater sources which supply them. Water use in the phosphate production sector is expected to grow by 70% between 2000 and 2005 due to expanded production.

Mining and exploitation of phosphate rock in all operating mines in Jordan is carried out through a mechanised open cast mining technique using electric walking drag-lines with various bucket capacities. In addition to the obvious changes to landscape and geomorphology involved in the removal of mineral resources, the open-mining technique means local air pollution in the form of particulate matter and pollution of soil and groundwater resulting from run-off from the mine areas.

Types of emissions resulting from phosphate mining and processing and fertiliser production include particulate matter (especially dust from open mining), heavy metals such has cadmium, mercury and lead from processing discharged into air and water streams, gaseous fluorides from phosphoric acid production, acid fluid wastes, and CO_2 emissions from massive electricity consumption. In addition, workers are exposed to low level radiation.

These forms of pollution can impact health of the workers and the local population, either directly as in the case of air emissions, or indirectly via their impact on water resources and soil quality. Agricultural production in the Mhai village near the Hasa mine, for example, has suffered due to dust and soil contamination. In addition to the impact on the human health, the pollution also impacts the area's biodiversity which includes several rare and endangered species, such as the grey wolf, the sand cat, and the golden jackal.

The production and transport of phosphate-based fertilisers to and from the Aqaba port is a serious potential threat to the local marine environment. Aqaba is home to the world's northernmost coral reefs – a particularly fragile marine ecosystem. In addition to the obvious and severe threat which increased marine traffic will have, phosphate-induced algae blooms resulting from dust from fertilisers entering the marine system during loading process suffocates and kills the corals, which are the core of the local ecosystem as well as a major tourist attraction. Some efforts have been made to install facilities to minimise such dust releases,[25] however, Jordanian phosphate transport and loading it is still not a closed system. Thus the threats of air pollution and marine pollution still exist and are likely to increase along with increases in transport unless measures are taken including additional infrastructure and monitoring of mining, transport and loading.

The phosphate and fertiliser industries, due to their large scale of production, are capable of affording environmental management and certification schemes. JPMC, for instance, is undertaking ISO 14000 series certification and it is expected that joint ventures with European partners will do likewise. Despite such ostensibly positive efforts, however, the industry still has serious environmental impacts which are expected to increase as production expands. Such a negative scenario is especially likely given the current situation of cheap supply of water and electricity which does not reflect their true environmental costs, and given the current lack of political will or ability to enforce environmental and health and safety regulation, which shows little sign of imminent change. In fact, in a Ministry of Planning publication on the phosphate industry, water and electricity were singled out as two areas which are not in need of reform in order to improve sector performance (MoP, 1999), indicating that only the reliability of supply, and not the external environmental impacts, are being looked at by officials.

A brief description of the major environmental and environmentally related socio-economic issues associated with the phosphate and fertiliser industries is presented in Table 1, followed by a schematic in Table 2 listing mitigation measures currently being implemented. Tables 3 lists anticipated impacts due to projected future industry growth and Table 4 provides a schematic of proposed mitigation measures.

[25] This is in contrast to the neighbouring Eilat port in Israel, which has not installed any such dust prevention facilities, despite legal orders to do so, and thus, represents an even higher hazard (Bartov, 1999).

TABLE 1 – SOME CURRENT ENVIRONMENTAL IMPACTS FROM THE PHOSPHATE AND FERTILIZER INDUSTRY IN JORDAN

IMPACT	STATUS
1) Energy Consumption	1) In 1997, the phosphate extraction industry consumed about 144.4 Gigawatt hours (GWH), representing about 8% of the industrial sector electricity consumption and about 2.7% of the total electricity consumption in Jordan. 2) Producing one ton of phosphate consumed about 230 Kilowatts on average, and consumed 0.0073 ton of fuel used for electricity generation (1 GWH = Consumption of 309.4 tons of fuel).
2) Major geo-morphological changes in the mine sites and surrounding areas.	1) The estimated volume of overburden (unused earth and minerals left over after mining) excavated in the Hasa and Abyiad mines during the period of 1984-1998 was about 545 million mcm, while in the Eshidiya mine it was 63.5 mcm for the period 1988-1998.. 2) Extracting one ton of raw phosphate required between 3.9 m^3 to 11.8 $m^{3,}$, in best and worst cases scenarios, with an average of 8.1 m^3.
3) Deterioration of water resources **Phosphate extraction**	1) The phosphate industry is highly water consumptive compared to other industrial activities in Jordan. Water consumed by phosphate extraction industry was about 28% of the water consumed by the total industrial sector in 1998, and about 1.3% of total water consumption in Jordan. 2) Estimated total water consumption for Hasa and Abyiad mines during the period of 1982-1998 was 194 mcm, while for the Eshidiya mine it was 20.8 mcm for the period of 1990-1998. (Natural groundwater recharge to the aquifer system in mining areas was 112 mcm for 1982-1988 period.) 3) Average water consumption per ton of phosphate extracted averages 2.4 m^3, however, quantities of consumed water per unit of phosphate show a sharp increase over the last five years, reaching about 3.1 m^3 per ton in 1998. This indicates that the phosphate extraction industry not following a strategy for water conservation management.
4) Deterioration of water resources *Fertiliser manufacturing*	1) In 1998, water consumption for fertiliser production in Jordan was 11 mcm representing about 21.6% of total industrial water consumption, and 1% of total national water consumption. Average annual water consumption by the Aqaba industrial complex alone is 4-5 mcm. 2) About 2.8m^3 was consumed to produce one ton of fertiliser in the Aqaba industrial complex.
5) Generation of solid wastes from different industrial activities within the phosphate extraction sites.	1) About 0.7 ton of phosphate wastes resulted from the production of one ton of phosphate ready for use or for export. 2) During the period of 1990-1998, about 32.7 million tons of wastes resulted from phosphate cleaning and upgrading. 3) These quantities of solid wastes are left in areas around the mining areas generally without treatment.
6) Solid wastes resulting from phosphate fertilisers industry	1) The total volume of phospho-gypsum from the Aqaba industrial complex was about 8 mcm for the period of 1990-1998, or roughly 0.9 million tons per year.

TABLE 2 – SCHEMATIC OF CURRENT IMPACT LEVELS AND ON-GOING MITIGATION MEASURES

Significant Environmental & Socio-economical Issues	Status Impact	Impact Level	On-going Mitigation Measures for Negative Impacts
Regional & International Level			
1- Energy Consumption / Contribution to climate change	-	**M**	None for phosphate extraction, although modern techniques are applied to reduce the emissions from fertiliser manufacturing.
2- Contribution to desertification	-\+	**H**	Little is done to minimise water consumption. Treated wastewater is used to a limited extent in trial forestation activities within plant sites.
Local Level			
I- Environmental Issues			
1- Changing the local geomorphology	-	**H**	None
2- Effect on the local climate including air pollution	-	**H**	None for phosphate extraction, although modern techniques are applied to reduce the emissions resulted from fertiliser manufacturing.
3- Consumption of limited water resources.	-	**H**	None
4- Effect on biodiversity in southern Jordan	-	**L-M**	None
5- Effect on marine ecosystem in the Aqaba Gulf	-	**L-M**	Use of dust absorbers in the Aqaba port to reduce the level of dust and particulate resulted from phosphate unpacking and ship loading Threat exists of equipment failure and other accidents. Modern techniques are applied to reduce air emissions from fertiliser manufacturing plants in Aqaba. New coastal zoning plan for Aqaba (highly criticised by environmentalists for possible negative impact o n corals)
Effect on public health of workers and the local communities	-	**L-M**	Masks are provided to workers but rarely used. No measures are taken vis-a-vis local communities Assessment of possible health impacts of sector just getting underway
II- Economical & Social Issues			
1- Increasing foreign investment	+	**M**	
2- Upgrading infrastructure in nearby areas	+	**L-M**	

L = Low, M = Medium, H = High

TABLE 3 – EXPECTED IMPACTS OF GROWTH IN THE PHOSPHATE AND FERTILISER INDUSTRIES*

EXPECTED IMPACT	EXPECTED STATUS
1. Increasing consumption of limited water resources in Jordan / Impact on groundwater safe storage	1) Water consumption quantities for the Jordanian phosphate extraction sector are expected to increase from 14 mcm in 1998 to 24.6 mcm by 2006. Estimates for total consumption rate of water in the phosphate extraction sector during the next ten years vary from 140 mcm (best case scenario) to 340 mcm (worst case scenario), with 224 mcm as an average value. 2) Water consumption for the fertilisers industry is expected to increase from 11 mcm in 1998 to 15.5 mcm by 2003. 3) Available natural recharge to the groundwater aquifer system used by this industry varies between 10-12 mcm year, which is equal to 100-120 MCM for the next ten years. Thus the shortfall, which is likely to be supplied by unsustainable withdrawal rates from the groundwater system is estimated at between 20 and 120 mcm for the ten year period.
2. Geomorphological changes of the extraction area and nearby areas.	1) During the next ten years, the expected overburden materials resulted from phosphate extraction ranges from 360 mcm (best case scenario) to about 1090 mcm (worst case scenario). Overall, it is estimated to produce about 750 mcm of loss materials for the period 1999-2008.
3. Increase in solid wastes	1) Expected volume of solid wastes resulting from the process of upgrading the raw phosphate will be about 65 mcm for 1999-2008. 2) New projects will add about 2.2 million tons of phospho-gypsum to current levels of solid wastes from the fertilisers industry.
4. Increase in fluid wastes	1) The volume of fluid wastes is expected to increase significantly as a result of expanded industrial activities both in mining and in fertiliser production. (In the Hydro-Agri Jordan project alone, the increase will be about 220 m^3 per hour, or about 1.9 mcm per year.)
5. Higher energy consumption	1) Electricity consumption by the phosphate industry will increase from an estimated 190 GWH in the year 2001 to 235 GWH by the year 2006, and the fuel consumed in this regard will increase from roughly 53,700 tons of oil equivalent to 74,600 tons for the same period.

- Note: It is not the authors' intention to claim that all of the environmental impacts listed herein are a direct result of trade liberalisation, whether within the Euro-Mediterranean framework or otherwise. It is merely the intention to state that the aforementioned Euro-Med economic programme is a contributing factor to the projected rapid growth in the phosphate and fertiliser industries, for reasons outlined earlier, and therefore bears a measure of responsibility for the resultant environmental impacts.

- **TABLE 4 – SCHEMATIC OF FUTURE IMPACT LEVELS AND PROPOSED MITIGATION MEASURES**

Significant Environmental & Socio-economic Issues	Impact Status	Impact Level	Proposed Mitigation Measure For Negative Impacts
International & Regional Levels			
1- Energy Consumption / Contribution to climate change	-	**M-H**	Application of Best Available Technologies (BAT) for reduction of gaseous emissions. Development of broad forestation campaigns supported by phosphate industries, using treated wastewater from the phosphate and fertiliser industries.
2- Contribution to desertification	-	**H**	Development of broad forestation campaigns supported by phosphate industries, using treated wastewater from the phosphate and fertiliser industries.
Local Level			
I- Environmental Issues			
1- Changes in local geomorphology	-	**V.H**	Re-dumping of overburden materials resulting from the phosphate mining into original excavation sites
2- Effect on local air quality	-	**H**	Application of BAT for reduction of gas emissions (e.g. closed loop filter gas vacuum, hermihydrate scrubbing units, water cover on phospho-gypsum to reduce radon gases) Development of broad forestation campaigns supported by phosphate industries, using treated wastewater from the phosphate and fertiliser industries
3- Consumption of water resources	-	**M**	BAT for water management Use of treated wastewater for irrigation practices and industrial activities
4- Ground and groundwater pollution	-	**M-H**	BAT (e.g. closed system resource recovery and reuse programmes, lining tailing storage areas, etc.)
5- Effect on biodiversity in southern Jordan	-	**M**	The establishment of additional natural reserves in southern Jordan with financial support provided by companies working in affected areas
6- Effect on marine eco-system in the Aqaba Gulf	-	**H**	Use of BAT regarding emissions resulting from fertiliser manufacturing Diversion of ships traffic away from the sensitive marine areas Installation of monitoring system for possible phosphate releases in sea
7- Effect on public health of workers and local communities	-	**M**	Upgrade enforcement of current safety precautions
II- Economical & Social Issues			
1- Increasing local income	+	**H**	
2- Effect on employment in southern Jordan.	+	**M**	
3- Upgrading the infrastructure in mines and nearby areas	+	**H**	

L = Low, M = Medium, H = High, VH = Very High

6. CONCLUSIONS

The phosphate industry is a major source of foreign currency and employment in Jordan. Mining and mineral processing however, have serious and in some cases irreversible impacts on the environment and on the well-being of the local populations. The sector already extracts water beyond sustainable limits, energy consumption is high, and air and water pollution negatively affect local human and wildlife populations.

Jordan is planning to expand phosphate mining by up to 67% over the coming decade and to rapidly develop its fertiliser and chemical production capacity in order to expand into new higher-value added product markets as well as into new geographical markets. Due to relatively low profit margins and allocations for research and development, the industry is seeking joint ventures in order to gain finances, new technologies and market contacts. In this regard, it is looking very much towards Europe for partners.

While it is difficult to draw a definitive relation between the Euro-Med free trade programme and the current expansion of the sector, there is evidence that the former at least contributes to the latter, both directly through finance (EIB loans) and more generally, through promotion of an investment climate conducive to joint ventures between EU and Jordanian firms. Such initiatives have recently begun to develop. Jordan's potential comparative cost advantage in meeting high EU environmental standards regulating phosphate products may be a contributing reason for current EU interest in Jordan's phosphate and fertiliser industries.

Given the current lack of internalisation of environmental costs for producers in Jordan (both in terms of consumption and emissions) and relatively weak enforcement of environmental regulation, the planned expansion of production is likely to exacerbate current negative environmental impacts, especially in terms of water and energy consumption. In addition, increased shipping of products via Jordan's only sea port, will mean higher risks to the area's fragile and unique marine eco-system.

7. RECOMMENDATIONS

Given such potentially detrimental impacts on the environment and public health, it is recommended that the following policies be adopted. As several Mediterranean countries are exporters of phosphate and phosphate products there is potential to develop several of the recommendations at a regional level, thereby sharing experience, promoting regional integration and eliminating possible disincentives which might arise to fears of losses in competitiveness if implemented unilaterally.

Policy Level

- Programmes need to be initiated to enhance enforcement of environmental regulation.

- Foreign investors/joint ventures in large-scale industrial firms should be obligated to utilise Best Available Technology. A Euro-Med regional economic or industrial forum could draw up a list of criteria for deciding which type of industries would fall into this category.

- Environmental screening of official Euro-Med financial assistance (MEDA and EIB) should be initiated. Finance to expand extraction industries and to develop other heavily polluting industries should be balanced by parallel assistance of environmental and/or social mitigation measures for these industries.

- Policies which incorporate environmental costs for resource use (water, electricity, and land) need to be instituted and enforced.

- Monitoring public health of workers and local populations, especially regarding illnesses caused by inhalation of dust, exposure to radiation, and intake of heavy metals.

- Initiation of a forestation campaign may assist in reducing the limits of air pollution and the intensity and duration of the dust storms.

Industry Level

- Establishment of effective monitoring systems within mining, production and port facilities to indicate when environmental standards have been exceeded.

- Since more funds are anticipated to go for research and development with European-Jordanian joint ventures, some of the profits should be allocated to compensate local communities for environmental and socioeconomic damages.

- Closed transportation systems should be developed and utilised. Monitoring systems to ensure proper system functioning should be installed.

- Environmental restoration of mines should be enforced. Returning overburden into small and medium size quarries should be mandatory. This will reduce damage to landscape as well as reduce dust pollution.. Large size quarries can be prepared to collect rain water and/or the water resulted from the cleaning process for the phosphate. The collected water can be used for agricultural purposes or for forestation campaigns. The World Conservation Union (IUCN) could be a body of technical assistance in this matter.

- European firms investing in southern Mediterranean countries should be required to ensure that the projects in which they invest meet home country or EU environmental standards.

Implications of the Euro-Mediterranean Free Trade Zone on Agriculture & Environment in the Southeastern Mediterranean

by Dr. Abdul-Hamid Musa,
On behalf of Palestinian Agricultural Relief Committees (PARC)

1. INTRODUCTION

Agriculture plays important social and economic role in the Southeast Mediterranean (SEM) economies of Jordan, Egypt, Palestine and Israel. Collectively these countries have several comparative advantages, which allow higher degrees of competence and thus a potential to exploit marketing opportunities opened to the region through the liberalisation of trade, especially with European markets. The strengths include:

Cost effective off-season production of vegetables and fruits, especially in the Jordan Valley, a natural greenhouse.
Abundance of production technology, know-how and accumulated experience.
Comparatively low labour costs

Some major limitations for the sector include its lack of water and arable land, poor infrastructure and marketing services, and vis-a-vis the European Union, very restricted market access.

The long-term objective of this research endeavour is to contribute to the optimisation of socio-economic and environmental impacts of establishing a Mediterranean Free Trade Zone (MFTZ), as called for under the Euro-Mediterranean Partnership. The immediate objective of the study is to shed light on the possible environmental and environment-related socio-economic consequences with respect to agriculture of freeing trade in the region, and in turn, to develop practical recommendations for policy measures to emphasise projected positive impacts and mitigate negative ones.

In order to predict impacts, there was initially an interest in developing a simulation model, which would quantify impacts of different possible trade scenarios. Such models, however, demand accurate and compatible time series data and require a priori information on behavioural relations. Current state of data collection in the region, significant variation among EU-SEM association agreements in terms of the actual treatment of agriculture, and the wide scope of the research all presented difficulties in building accurate models of such a type. Instead, a simple systematic analysis of various possible outcomes of trade association was followed to shed light on possible implications of establishing an MFTZ, focusing on the EU-SEM trade dynamic, especially the effect on SEM agricultural export sector.

The study faced several methodological constraints, given differences within the area studied, including:

1. Diversified agricultural production bases in the four countries. Mainly dry farming in Jordan, irrigated agriculture in Egypt, capital intensive, high-tech, well organised agricultural production in Israel, and finally an agriculture sector with very restricted access to resources and outside markets in Palestine.
2. Different political systems, sectoral policies and levels of transparency in terms of availability of resources and information.
3. Different standards of levels and technical capacity within the field of agriculture, and hence varied responses to new challenges.
4. Varying factor productivity, especially for labour and water.

Other problems encountered in conducting the study included:

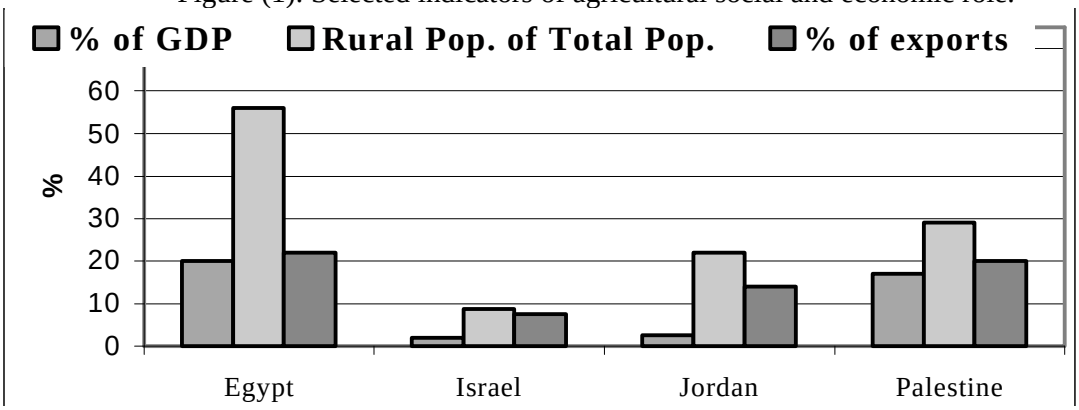
1. Obtaining consistent and comparable data on the economy and the environment over an extended period.
2. Isolating the impacts of MFTZ on the agricultural system from other driving forces, such as structural reforms, establishment of Arab Free Trade Area, membership in World Trade Organisation, and others.

2. ROLE OF AGRICULTURE IN THE REGION

The total population of the SEM countries Egypt, Israel, Palestine, and Jordan is estimated at 77 million for the year 2000 and is projected to grow to 92 million by 2010, with an average annual increase rate of roughly 2.0%. Economically, agriculture's contribution to Gross Domestic Product (GDP) is moderately high, especially in Egypt (figure 1) where it accounted for 20% in 1996, as compared to 17% in Palestine, 7% in Jordan and a comparably lower 2.5% in Israel. The agricultural sector also comprises an integral part of export earnings. Agriculture exports constitute 22% of total exports for Egypt, 20-25% for Palestine, 14% for Jordan, and 7.5% for Israel (see figure 1 below).

Agriculture in the region plays an even more significant social role in securing jobs and generating income for rural people, which constitute a relatively high proportion of the population, especially in Egypt (56%), but also for Palestine (29%), and Jordan (22%), while less so for Israel (8.8%). The economically active population in agriculture in these countries is diminishing, however, and this trend is expected to continue (FAO; PCBS, 1998), which means fewer farmers to secure food for more people.

Figure (1): Selected indicators of agricultural social and economic role.



2.1. Climate and Comparative Advantages

The region is characterised by long dry summers and by frequent and serious drought years. Its terrain is diverse however, containing four major eco-geographical climatic zones: Mediterranean, Irano-Turasian (Steppe), Saharo-Sindic and Sudanese. In terms of agriculture, the comparative edge of this region lies mostly with early production of vegetables, fruits and flowers. Another advantage of the agricultural products lies in their quality. Theoretically, under conditions of free trade the region would have comparative advantage in producing winter (early) vegetables, tomatoes, melons, potatoes, onions, early grapes and citrus. The competitiveness of these products would be expected to improve under free trade conditions, due to reduction of subsidies (export and production) and relaxation of other trade distorting production incentives.

Exploitation of the region's comparative advantage is constrained by several factors, among which is clearly limited natural resources, above all water. In addition, there is a perceived pressing need to attain a certain level of food security, on national and household levels, especially with high prices for strategic agriculture products. Another important problem for Egypt, Jordan and Palestine is a less developed technical base for the agricultural sector, especially in terms of biotechnology. The technical gap will play an increasingly crucial economic role. In addition, insufficient and inefficient infrastructure, institutional and regulatory gaps, and limited financial resources also prevent the region from realising its agricultural market potential.

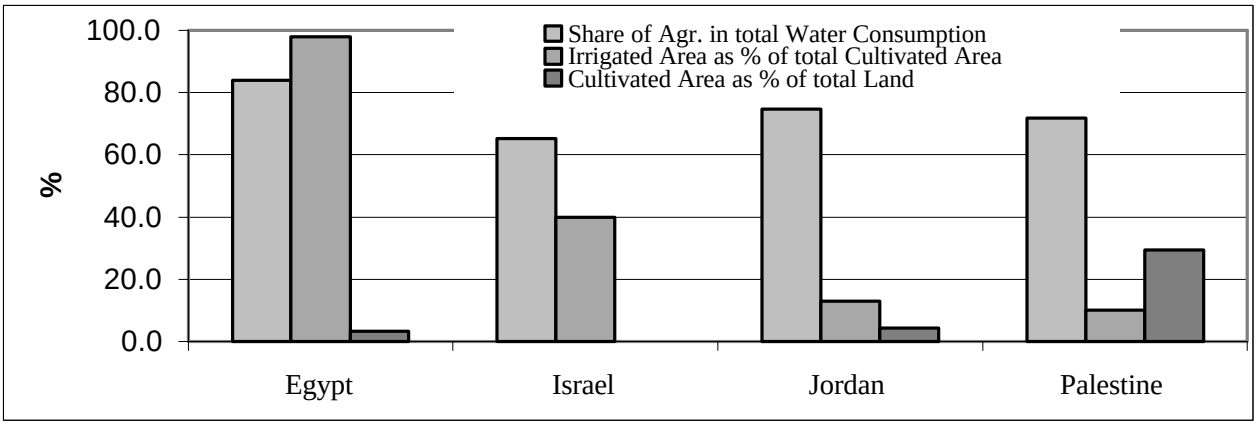
2.2. Agricultural Production System

Most of Egyptian and Jordanian cultivated areas are allocated to perennial crops (vegetables and field crops) unlike in Palestine, where most of the area is allocated for fruit trees, due, *inter alia*, to the prevalence of semi-humid (rain-fed) farming. In Egypt, almost all cultivated areas are under irrigation (98%), with over 40% in Israel, 13% in Jordan and 10% in Palestine (See figure 2). There is a general trend towards cultivating more lands, with specific interest in irrigated agriculture, since rainfall is inadequate for most

vegetables, fruit trees and many other crops. In Israel, with a large export-oriented production system, cultivated area increased by 265% during the previous 50 years, while irrigated area increased by 800% (MOEI, 1998). In spite of application of water saving irrigation techniques, especially under vegetable production, there is evidence of excessive and inefficient use of irrigation water in all four countries.

Agricultural development in these countries is based on vertical development and failed to some extent in the horizontal development, which requires techniques and technologies designed for these countries, and assumes dedication, innovation and above all utilisation of indigenous knowledge and participation of local population. On the policy level, subsidies of inputs and price supports were heavily adopted to pursue certain social and political development objectives such as import substitution and increased equity in income distribution. Agricultural subsidies were the primary driving force for production, resulting in surpluses of fruits and vegetables with high production costs, and uneconomic and inefficient use of scarce resources, especially water and arable land.

Figure (2): Selected agricultural indicators of environmental importance.



Agriculture production affects the environment in several different ways, determined largely by production site, cropping patterns, technical levels, and agro-chemical use.

Location: Production site plays a major role in determining choice of crops, exploitation of natural resources and rates of chemical application. Most of the Jordanian vegetable production, for example, occurs in the Jordan Valley, a small portion of the country's total land area. Even within this area, there is a significant difference between its northern and southern parts. Technology level has only a limited effect on the production distribution.

Cropping Patterns: Shifts in the cropping pattern mean changes in pressures on resource bases, such as soil erosion and water extraction, as well as fertiliser and pesticide use. Rain fed farming is the most environmentally friendly agriculture production system followed by open farming. Irrigated farming, in addition to its drain on water use, also generally involves higher applications of chemical inputs. In addition, the quality of water used in irrigation affects long-term soil quality and productivity.

Technology level: Numerous examples show that shifts in supply curves, due to introduction of higher technology levels has a direct relation to changes in environmental pressures. Generally, higher technology brings with it additional use of agricultural chemicals. Barring internalisation of environmental costs, something not common to the agricultural systems of the region, an economically rational farmer, who can afford to adopt high producing, capital intensive farming systems, will be more inclined to increase chemical application, as expected profits tend to justify the high capital investment and other additional costs. Technologies for water conservation and direct fertiliser application have been developed and are in place in some of the region, especially, Israel and Jordan. New water pricing policies, if implemented, would promote additional use of such technologies.

Agro-chemical use: Type and frequency of chemical applications in agriculture has clear environmental impacts, including effect on soil quality, surface and ground water quality, public health both of workers and consumers, and the state of the marine environment, due to agricultural run-off. Use of

agro-chemicals is widespread in the region. In Egypt alone 16,000 - 35,000 tons of pesticides have been used annually over the past 40 years (Ahmad A/Jawad, 1997), of which 75% are specific for cotton protection, while in Israel, there are 878 registered pesticides. There is evidence that farmers are over fertilising, especially under irrigated and intensive farming. Fertiliser use for Egypt and Israel has shown constant increase for the period 1980-1995, while Jordan's fertiliser use has remained relatively constant (FAO, website). As a result of high fertiliser use, a high concentration of nitrogen and other chemicals is expected in the leachate affecting the region's limited, but critical groundwater supplies. Application of pesticides also generally increases as production intensifies. In greenhouses in the region, for instance, pesticides are applied 40-50 times during the same season. In Palestine almost two-thirds of the pesticides are soil fumigants, mainly methyl bromide a chemical known to damage the ozone layer. Application rates vary according to crop type and production intensity from 30-500 kg per hectare. In some cases, such as carnations grown for export to the EU, rates climb as high as 1000 kg/hectare.

3. STATE OF ENVIRONMENT IN THE REGION

Water is scarce throughout most of the region. In all SEM countries, renewable fresh water is less than current withdrawal rates, an inherently unsustainable practice. Water sources in the region (the Nile and Jordan river systems and various aquifer systems) are subject to high contamination risks. The lower stretches of the Nile, for instance, are at risk from upstream agricultural runoff, while several of the aquifer systems are at risk of salination, especially from seawater intrusion due to over pumping. Such an occurrence has already seriously degraded groundwater in the Gaza Strip, for instance. Agriculture consumes the majority of the region's freshwater, accounting for 81% of water use in Egypt, 74% in Jordan, 70% in Palestine and 64% in Israel. Thus, it is the most important factor in terms of diminishment and degradation of water resources (see figure 2).

Limited amounts of arable land, and soil quality are also important issues for the region. Mismanagement and improper farming systems contribute to soil erosion and reductions in soil quality. Mountains and other marginal lands are often cultivated with cereal crops, either to take advantage of certain profits (subsidies) or due to higher costs and/or lower returns for alternative crops and locations, i.e. fruit trees production. Ambiguous laws and lack of enforcement fuel such mismanagement of high lands. Nutrient mining is serious in semi-arid areas and under rain-fed farming in particular, where use of mineral fertiliser is seldom economical.

4. TRADE RELATIONS & PERSPECTIVES

The EU is an important trade partner for the region. EU exports constitute 30% of the total trade volume of the SEM countries. Of this, 65% is with Israel, 30% with Egypt, and only 5% with Jordan. The EU market is also an important destination for much of the region's production, absorbing 49% of Egyptian exports and 31.3% of Israel's exports, but is more limited for Jordan, where it claims only 6% of total exports (STEMINA, 1997). Agriculture trade is limited, however, do to trade restrictions on both ends, especially the EU's Common Agricultural Policy (CAP) which effectively protects its EU Mediterranean members from competition by non-EU members in the region with comparative advantages in similar crops. [26]

The Barcelona Declaration establishing the Euro-Mediterranean Partnership and laying out its plan for regional trade relations, calls for free trade in manufactured goods with agricultural trade to "be progressively liberalised through reciprocal preferential access among the parties." The work programme laid out in the Barcelona Declaration addresses agriculture, calling for policies promoting such goals as

[26] In looking at the example of Jordanian fruits and vegetables, for instance - a sector, in which Jordan should have a comparable advantage vis-a-vis the EU - only 0.5% - 1% of exports go to the EU (although this accounts for about 50% of exports to non-Arabian countries). Since 1994, Jordanian agricultural exports to EU showed a slight improvement, although experiencing much fluctuation. Thus, it appears that the EU is not interested in Jordanian agricultural production. Around 75% of the EU's imported tomatoes are off-season (Nov. to March), and thus differ greatly from the distribution of Jordanian tomato exports in general, 80% of which are exported over the period May to November (AMC, Annual reports).

"diversification of production," "reduction of food dependency," "promotion of environmentally friendly agriculture," and "technical assistance and training." Such programmes are to be addressed at a regional level, while actual trade relations, which have the greatest effect of all Euro-Med initiatives in terms of impact on agricultural production in the region, are dealt with at a bilateral level – an obvious policy gap. In looking at the actual association agreements between the EU and the SEM countries, little in terms of measures that would promote such goals is actually evident.

4.1. EU-Association Agreements

Agricultural production in the SEM is a victim of the EU's CAP, the principal relevant features of which are:

1. Guaranteeing higher prices for EU producers, which amounts up to 75% of the production costs
2. Levying taxes, which vary in order to compensate for lower international prices.
3. Putting non-tariff barriers, such as quotas on imports of agricultural products, which vary according to the European agricultural production season.

Under association agreements with the EU, provisions accorded to the SEM countries remained within narrow limits and were frequently only granted for off-season production, which, *inter alia*, involves higher investment, economic risk, and environmental impacts. From the viewpoint of SEM countries, bilateral association agreements with the EU within the Euro-Med framework are seen as urgent for several reasons:

1. The imminent expansion of the European Union to include Eastern Europe, which will diminish opportunities for SEMs to penetrate the EU market without an agreement,
2. Corrosion of existing trade protocols and preferential treaties following the establishment of WTO,
3. Challenges of structural reform in light of changing technical assistance policies of the EU and other donor countries,
4. The overall need for upgrade and reform of economically productive sectors and for socio-economic development programmes.
5. The need to create an environment conducive to trade, investment, and technical and financial support
6. Strengthening of political stability and regional integration and cooperation.

Due to the lack of competitiveness of their respective industrial sectors and the poor natural resource base, SEM countries can expect several negative economic and social shocks in opening up their markets to competition to free trade with Europe, at least in the short and medium term. This, along with the assumed competitiveness of SEM agricultural production, was behind attempts by SEM country negotiators to "free" agricultural trade with the EU in the bilateral agreements. These efforts were not very fruitful.

The association agreements treat differently two major types of products relevant to agriculture sector. The first group is manufactured agricultural products and the second is fresh agricultural products.

1. The first group includes the manufactured agricultural raw and products, for example feather, plant products for manufacturing baskets, cacao butter and ground cacao, and chips of vegetables and fruits. According to the agreements they will be subject to free trade. The SEM region has little comparative advantage in producing such products, at least in the short or medium run. Therefore, trade liberalisation in these products will benefit consumers since market prices are expected to decrease due to the drop in customs and increased competition. At the same time, it will not harm the local agricultural production sector, since only a fraction of agriculture produce is manufactured locally.

2. The second group includes fresh agriculture products, of great importance to the SEM countries. The different association agreements of the SEMs all differ. The five major categorisations exhibited in the EU-Palestinian association agreement include:

One. Agricultural products with reduced customs tariff and no trade quotas (quantity or time), for example, grapefruits (80% reduction from maximum tariff).

Two. Agricultural products with reduced customs tariff and no quantity quota but within a limited time period (time quota), for example onions (15/2-15/5, 60% tariff reduction after quota).

Three. Customs exemption of some agricultural products limited to a quantity quota, but with no time quota, and with or without tariff reduction after the quota. Examples include cut flowers

(1,500 tons without tariff reduction after the quota), and paprika (1,000 tons, with 40% tariff reduction after the quota).

Four. Free trade of limited quantity of certain products within limited time period and no tariff reduction after the quota, for example strawberries (1,200 tons, 1 Nov.-31 March).

Five. Free trade of limited quantity of certain products within limited time period with or without tariff reduction after the quota, for example tomatoes (1,000 Tons between 1 Jan. to 31 March and 60% tariff after that quota).

It is difficult to generalise regarding the treatment of agriculture under the association agreements, since concessions granted differs widely between nations, despite the high degree of similarity of their production portfolios. Production efficiency was not behind these decisions. In general, it can be said about the association agreements that:

1. There is a big difference between the request of SEM countries and what have been granted to them, both in terms of quantities and time quotas. Concessions granted by the EU to SEM countries comprise only a fraction of quotas requested during the negotiations.
2. Preferential treatment has largely failed also to cover the assumed comparative advantage of the SEM agricultural production sectors.
3. Several crops, especially fruits but also some vegetables, which show seasonal overproduction and could compete in the EU markets, are not considered for preferential treatment. These products include cucumber, grapes, and figs among others.
4. Some agricultural products, typical to the area and which can be produced cost effectively were not included in the partnership agreement, for example figs, pomegranates, and cactus plants.
5. Time quotas are short for several commodities and are inconsistent with production peaks (see table 1 below).

Opinion in the region as to potential benefits of joining an MFTZ is largely sceptical. Reasons include:

1. Penetration of EU markets and beneficial utilisation of the agreements' potential require dedicated institutional efforts and coordination among stakeholders, which is still in its infant stages in SEMs,
2. Penetrating EU markets requires developing institutional capacity and rehabilitation and upgrading of infrastructure in terms of research, production and marketing.
3. Limited water availability and other factors restrict utilisation of resources,
4. Small scale farmers are likely to be marginalised.
5. The private sector is not organised sufficiently in terms of a marketing role.

Table (1): Production distribution of selected crops and the EU-preferential treatment granted to them.

Crop	JAN	FEB	MAR	APR	MAY	JUNE	JULY	NOV	DEC
Tomato	P	P	PS	S	S				P
Eggplant	P	P	P	PS	S	S	S		
Zucchini	P	P	S	S	S	S		S	PS
Melon	P	P	P	P	P	S	S	P	P
Onion	S	PS	PS						S

P - Months with preferential treatment S - Expected production surplus

Implications

Benefits expected by the SEM countries include some expansion of agricultural exports, attaining development loans, in-flow of foreign capital and increased foreign investments. Preferential tariff-quotas were tailored to suit the local European producers and were given mostly to off-season production, especially in winter vegetables and fruits. These concessions granted to the SEM countries may induce certain structural adjustment of the farming sector, which should improve its competitiveness especially in the medium and long run. The adjustment process will affect the structure of the overall farming sectors as well as that of individual farming units in the region, which implies therefore far-reaching social, economic and environmental implications, both positive and negative.

4.2. Possible Structural Adjustments due the MFTZ

Regional integration: The Euro-Med Partnership is based on both bilateral and regional free trade agreements. Bilateral trade agreements between neighbouring countries will have a big role in optimising trade with third countries, in sharpening comparative advantage on the national level and in

reducing the trade losses on the regional level. An example of such developments is the establishment of Arabian Free Trade Area and the several bilateral free trade agreements. Concessions granted by the EU to the seemingly customs free export of tomato paste from some countries in the region may strengthen these trends.

Policy reforms: Agricultural subsidies, especially for fertilisers, pesticides, irrigation water, and floor pricing for products encourages farmers to overproduce at unnecessary environmental cost. Dropping subsidies is a win-win policy reform, as higher efficiency means less burden on the treasury and on the environment. By removing price supports for pesticides, for instance, Egypt reduced the use of agricultural pesticides from 34,000 tons in the 1980s, to 4,000 tons in the late 1990s (according to Agriculture Minister Youssef Wali, as quoted in Essam El-Din, 2000). Removal of subsidies, however, can bring social costs which also will have to be addressed. The extent to which the Euro-Med agreements will promote such pricing reforms is still not clear.

Supporting industry: The region is a net importer of manufactured agricultural products. Optimal use of the rules of origin necessitates the development of sectors in intermediate products so far receiving little attention which are likely to face stronger competition from the EU on the medium and long runs. In general, one may expect more investment in food processing of locally produced agricultural products, e.g. production of tomato paste.

Vertical and Horizontal expansion: Certainly, the establishment of an MFTZ will induce expansion of firms and sectors that fulfill efficiency requirements to benefit from the expansion of the market and trade creation opportunities. Some farms, mainly large and medium size commercial farms, are expected to respond efficiently to the new export opportunities. Small farms will be negatively affected unless restructured, which may encourage consolidation of fragmented agriculture holdings or increased cooperation. Alternatively, it may mean being swallowed by big farms. Under trade liberalisation, horizontal expansion is expected (Munasinghe and Cruz, 1995), especially in areas such as the West Bank, where 53% of total area receives enough rainfall to be cost effectively cultivated. Small farms generally use less intensive farming methods, which is environmentally positive, however, they are also less likely to apply environmentally friendly technologies such as drip irrigation, and thus, are generally less efficient in terms of resource use.

Higher technology levels: Generally, sub-sectors with potential comparative advantage will witness a process of intensification of production of export crops. This may encourage adoption of new technologies and equipment, especially for water conservation. Israel and Jordan already make wide-spread use of drip-irrigation, for instance, and use in the SEMs could increase if proper pricing of water is instituted.

Production site and cropping patterns: Possible consequences include intensification of vegetable and fruit production programmes, especially in the Jordan Valley, to increase off-season production in response to tariff-quotas. Due to this inconsistency for customs exemption vis-à-vis production-possibilities and surplus, more areas will be allocated to winter production under protected agriculture systems. A shift in cropping patterns and the stress of off-season production is more likely as a consequence of the new agreements rather than improvements in cost and technical efficiency.

4.3. Agricultural Implications

Export Opportunities: On the export opportunity level, introduction of the tariff-quotas may improve the situation but not significantly. On the other hand, expansion of the European Union to include Eastern Europe will negatively affect export opportunities for SEM agricultural commodities since these countries will have better access and benefit from more abundant arable land and water resources. Therefore, SEM agricultural exports are expected to suffer, particularly in the short run. In the long run, trade liberalisation is expected to increase agriculture exports of core countries.

Public expenditure and investment: Low productivity of agricultural sectors in the region is due partially to the lack of investment and public expenditures in the agricultural infrastructure and services (production and marketing). The expected rise in the import bill and other financial burdens on national treasuries will further diminish governments' ability to invest in infrastructure and develop extension services.

Food Gap: The SEM is experiencing a trend is towards a wider food gap. Recently, prices of cereals, of which the EU is a large exporter to SEMs, have been increasing, as have the prices of red meat, while prices of crops produced and exported by the SEMs, mainly vegetables, have generally been decreasing (and those that are increasing are doing so at much lower rates than those for cereals). For Egypt, for instance, food imports doubled in the 1990s, while exports remained largely static. For the Arab countries in general, the ability to cover import bills with exports dropped from 48% in 1979 to 32% in 1993 to 21.4% in 1996 (El-Imam, 1999). Tools, such as Emergency Food Assistance Programmes, developed to compensate developing countries for these losses, may fulfill some requirements during the interim period, but certainly not all and not for the long term.

Input prices and technical gaps: Prices of manufactured agricultural inputs, especially those with lower industrial and technical components are subject to decrease under the Euro-Med agreements. Costs of high-tech agricultural inputs, i.e. inputs resulting from prolonged research and trials and with higher proportion of know-how will remain beyond the reach of much of those active in the agricultural sector. Thus, the gap between the EU and SEMs in the acquisition of agricultural technologies may promote a trend of shifting competitive advantages away from indigenous private and public companies towards the foreign-owned companies that specialise in research and development based production.

Farm income: Studies showed probability of higher and less fluctuating prices for agriculture products within local market and in the export markets. If farming sectors respond properly, and if technical requirements are tailored to the needs of the farming units and resources allocated to satisfy market needs, the agriculture sector would be strengthened and so its contribution to GDP. Such a scenario is more applicable Israel and Egypt, than to Jordan and Palestine, which are more likely to suffer losses, due to their more limited resources bases. For countries with poor resource-bases, further opening of domestic markets is likely to reduce the income of many small farmers, even threatening their chances of staying in production (WWF, 1995).

If one looks at the case of Jordan, as an example, recent figures from Jordan (MOA/JO, 1999) showed that earnings of livestock enterprises are negatively affected by current trends in agricultural consolidation. The profits dropped for the different husbandry/feeding systems. All animal farms had generated profits in 1995. By 1998, however, only few farms in specific regions were able to make profit, while most had to operate with losses. The figures show almost similar level of revenue loss for nomadic and pastoral agriculture, indicating, most probably, more pressure of this type on range lands. Furthermore, being almost totally dependent on imported feed, environmental friendly animal husbandry systems suffered even higher than average losses.

Citrus and vegetable farms in Jordan Valley fared better than animal husbandry farming units, although, citrus and vegetable farms did have decreasing profits over the period 1995 to 1997. There was however, quite a difference from one region to another, with farms in regions with earlier production (off-season) suffering lower rates of losses and with some even managing to increase profits.

4.4. Social Implications

Free trade with notably insufficient considerations given to the actual needs of the involved parties and disadvantaged areas, especially areas with low agricultural productivity, will fail to draw investors. Rural people will be increasingly eager to work of marginal lands and/or migrate to cities, adding additional burdens to urban infrastructure and social services. Other likely outcomes include: further loss of job opportunities as ultimate result of closing down of certain non-competitive agricultural industries and introduction of high technology, less expenditures on social services and slower rehabilitation and development of the social infrastructure and services due to tighter governmental budgets, and possible health impacts of intensive use of agro-chemicals and chemical residues in edible fruits and vegetables despite the probability of higher quality standards and enforcement of these standards on the export oriented production. According to studies, unless the EU opens its markets to non-EU Mediterranean products, the potential market opportunities will be insufficient to balance the expected drop in welfare (Handoussa and Reiffers, 1999).

4.5. Environmental Implications

The pressures on natural resource bases will vary, especially according to location, and it is difficult to generalise, although certain general trends are likely.

4.5.1. Potential environmental gains

1. Higher environmental standards among SEMs countries as they gear towards the EU market.
2. Transfer of environmental technologies and increase of technical assistance and financial aid in environmental fields, especially in water conservation field.
3. Opening markets for environmentally friendly good such as organic agriculture or products receiving eco-label certification. EU markets for organic products have show steady growth, and thus, afford a potential win-win opportunity for SEMs. SEMs have largely been slow to capitalise on such opportunities, however, due to insufficient services for attaining certification recognised in the EU, insufficient marketing support systems for producers in identifying and capturing potential markets, and high operational costs (including the costs of actual certification).
4. Enhancing relief of certain areas put under artificial agriculture production from such pressures in favour of other areas with a comparative advantage.
5. More efficient use of natural resources, due to changes in cropping patterns dictated by the new market prices, and hence, higher production per unit factor input. Furthermore, increased input prices could encourage the use of substitute inputs such as animal manure instead of fertilisers, leading to more environmental friendly farming systems including organic farming, integrated pest-management systems, and bio agricultural production.

4.5.2. Possible negative impacts on environment

Resource Use: If environmental costs are not internalised and pricing remains with the status quo, increased production may lead to additional inefficient factor use (e.g. of water, minerals, land), with serious consequences for already overburdened natural resource bases. Furthermore, expansion of export oriented cultivation without proper pricing will lead to further waste of resources, resulting in export of resources, rather than profitable crops.

Threat to range and marginal lands: Increased market prices for livestock products and other substantial food crops, decreases in prices for fruits and vegetables, drops in farm incomes, and urban unemployment may accelerate risks of encroachment on environmentally sensitive areas, and may encourage farmers to plant food crops in marginal lands and/or to overstock range lands with herds exceeding the carrying capacities.

Expanded use of agro-chemicals: Despite possible reduction of price supports, and thus potentially more efficient use of agro-chemicals per unit of production, a trend towards intensive export agriculture is likely to increase overall chemical use in agriculture production in SEMs, unless comprehensive programmes are established to encourage alternative production methods.

Regulatory Failures: Natural resources protection legislation and enforcement of environmental standards are not sufficiently stressed and central governments with public deficits may not be able to afford to properly implement environmental policies. Whatever regulatory standards will be in place, however, further exploitation of natural capital should be expected, either to finance balance of trade distortions by the central governments or simply because of expanded production of subsistence agriculture.

Market Responses: Irrigated agriculture, particularly vegetable production is more responsive to the market pulses. Given this, the need to keep constant level of consumption for growing populations will mean that the SEMs will seek to export more to prevent a widening food gap, which of course, means further exploitation of the limited resources, especially water. Thus, governments will likely be willing to trade deficit in treasury with deficit in their natural resources reserves. An increase in both deficits is possible.

Responses of sustainable farming systems (rain-fed, integrated farming, organic farming) are expected to be much weaker. Under such systems, production practices are not expected to respond to sustainability. Lack of incentives, economic returns and lack of enforced sustainable development programmes, farmers will abuse their resources, through either overstocking, overgrazing, or soil mining.

5. RECOMMENDATIONS

In light of the possible implications resulting from the trade liberalisation process with the EU, the following policies are recommended:

5.1. Amendments to Association Agreements

There should be a transitional period for countries to upgrade their capabilities and to adjust their agricultural sectors to absorb shocks. These should be based on in-depth research assessments of projected social and environmental impacts, taken by each country at the national level. Lessons from each nation could be shared at a regional level via Euro-Med agriculture sector work programme.

Democratisation of the association arrangements and eventual regional MFTZ to allow for progressive elimination of quotas (quantity and time) granted to Mediterranean partners, in order to allow production exports which more closely match natural (and thus, less resource intensive) production patterns in the SEM countries.

Preferential market access for organic agricultural produce and other environmentally friendly certified agriculture could be incorporated into the Euro-Med association agreements, whereby such items would receive separate, beneficial quotas.

Development of a set of sustainability indicators and criteria for use in negotiation of trade agreement clauses in the field of agriculture.

5.2. Structural Adjustment

Incorporation of real value pricing, including internalisation of environmental costs for agricultural inputs in SEMs.

Emphasis linking price support to ecologically sensitive forms of agriculture.

Reorienting research and developmental support to production of high value quality products, e.g. figs, cactus, pomegranates. This would include support for marketing and export promotion initiatives.

Development of investment promotion programmes in technical development, including adaptive research and capacity building in the technical fields such as crop diversity, less water-consumptive varieties, selection, breeding, biotechnology.

5.3. Institutional Capacity Development Programmes

Develop a comparable data and information base to allow the tracking changes and developments on prices, incomes, and resources use levels. (According to Medstat, a Euro-Med supported statistical co-operation programme, agriculture is not among the priority areas for cooperation, although the environment is.)

Develop country and commodity specific decision-support models with emphasis on environmentally sensitive production locations.

Design and implement Integrated Rural Development Programmes and Income Diversification Programmes simultaneously with the establishment of the free trade zone to mitigate and dilute unavoidable social problems, such as rural exodus and rise in unemployment. Such work should be undertaken at local, national, bilateral, and regional levels.

Improve production, certification, and marketing systems in the SEM countries to enable producers to capture expected export opportunities for environmentally friendly agriculture and provide access to small-scale capital for such purposes.

Develop programmes for training of farmers safe-use of agro-chemicals, in order to avoid worker risks.

Develop tools and techniques to monitor and avoid cases of EU members misusing environmental concerns, quality standards and specifications in order to protect their producers

While some of the above-mentioned recommendations, especially in terms of institutional capacity development, are already suggested, in one form or another by declarations of the Euro-Med agricultural forum, commitments remain at a very general level. Further incorporation into regional level programming at the intergovernmental as well as research institute levels. Several worthy projects in this field are supported under the Euro-Med research, technology and development (RTD) framework, however, they remain piecemeal and lack central coordination necessary to realise such goals at national and regional levels.

Legal Environmental Gaps within the Euro-Med Partnership and their Potential Effect on the Environment under a Free Trade Zone:
Comparative Law Analysis and a Proposal for a Draft Protocol on Investment and Environmental Civil Liability

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I. General Introduction

The following research addresses the existence of legal gaps in terms of the current level of environmental protection offered by the EU environmental legislation representing the European countries and that of Mediterranean countries, such as Egypt, Israel and Jordan, situated in the southern Mediterranean basin. Specifically, the research addresses legal issues which are likely to be of special importance with the establishment of a Euro-Mediterranean Free Trade Zone or Mediterranean Free Trade Zone (MFTZ) which is called for under the Euro-Mediterranean Partnership.

Under a free trade regime, while customs and other commercial rules would be harmonised, environmental legal regimes would not. Resulting gaps in environmental legal protection between the relatively developed European countries and southern Mediterranean developing countries opens opportunity for rapid exploitation of the natural resources of the developing nations, including even the transfer of polluting enterprises from north to south. The authors adopts the view that although a future increase of transfer of polluting industries from European to Mediterranean countries is uncertain, and is a complex economic and political issue, it still merits serious consideration if one accepts the precautionary principle. Numerous examples of incidents such as the shipments of wastes, including hazardous wastes, from developed countries to developing countries in order to save money on disposal costs, for instance, justify a close comparative examination of the existing environmental legal regimes.

The research findings are divided into two main parts. The first part analyses, to the extent possible, the dimensions of the existing environmental legal gaps between the EU on one hand, and of the southern Mediterranean countries Israel, Egypt and Jordan, on the other.[27] It is important to note that this research addresses strictly the existing legal frameworks in place in the countries examined and does not go into detail in terms of evaluation of the effectiveness of enforcement of these legal instruments. The issue of enforcement is obviously of great practical importance, as even when legal regimes are known to be comprehensive, enforcement is often known to be problematic; however, a detailed evaluation of enforcement is beyond the scope of this study. The second part of the research attempts to offer a practical framework for the protection of the environment within the free trade agreements and existing international environmental law.

II. Review of the Existing Legal Environmental Regulation

The structure of the first part of the research is divided into four main divisions:

The first division introduces the basic assumptions and method of inquiry of the research along with a description of the existing environmental administrations and legal frameworks within each country.

The second division examines and compares non-sectoral environmental legislation including the following topics: Integrated Pollution Prevention and Control (IPPC); Environmental Impact Assessments (EIA); and Access to Environmental Information.

[1] The countries chosen for the research were intended to be representative of the spectrum of the southern Mediterranean. They were also selected, in part, based on the researcher's limitation to review authentic legal materials in Hebrew or English only.

The third division concentrates on some of the most fundamental legislation regarding specific pollution mediums, that is: Water Pollution Control, Solid Waste Treatment, and Air Pollution Control.

The fourth division, included herein as Annex I, draws general conclusion based on the above-mentioned research and proposes an initial legal framework for reconciling trade and environmental issues within the MFTZ initiative.

1. Environmental Administrations and Legal Frameworks

Environmental legislation within the European Union is the product of the interaction between the main institutions of the EU, that is, the Council, Commission, Parliament, and Court of Justice. Generally speaking, environmental interests are represented in the EU by the Commission via its Directorate General for the Environment (formerly titled DG XI). The Commission can initiate legal a process with the involvement of the Parliament and the Council, which might result in a legal instrument, e.g. a regulation or directive. The content of the relevant environmental legislation is guided mainly by Articles 130r, 130s and 130t of the Treaty of Rome 1957 as amended by the Single European Act, 1987 and the Treaty of the European Union signed at Maastricht on 7 February, 1992.

Once the proper legal instrument is adopted its effect is binding among all 15 EU members and is subject to the jurisdictional scrutiny of the European Court of Justice. Despite the size and complexity of the EU, it managed to create a relatively efficient supranational environmental administration producing a broad collection of environmental directives and regulations to be implemented by its individual state members.

Israel, the most economically advanced of the southern Mediterranean countries studied, has no single comprehensive environmental law but, rather, a patchwork of elaborated laws grouped under the control of a number of ministries, the main one being the Ministry for the Environment. Legislative and enforcement powers regarding the different aspects of the environment are divided among the central government and the local authorities.

Egypt, on the other hand, has one comprehensive environmental legal instrument, Law Number 4 of 1994 and its Executive Regulations (Decree 338/1995) coupled with specific laws relating to water pollution control introduced beforehand (e.g. Law 93 of 1962 on Drainage of Liquid Wastes and Law 48/1982 on Protection of the River Nile and Waterways from Pollution). Law 4 establishes the 'Environmental Affairs Agency' (EEAA), a public agency with a distinct juridical personality aimed at the protection and promotion of the environment in Egypt. According to the Law, protection of the environment is perceived as a joint responsibility, divided between six different ministries where the EEAA functions as a coordinative authority between the relevant ministries and departments. The Agency is established within the Prime Minister's cabinet and operated by a Board of Directors, which is chaired by the Minister for Environmental Affairs.

Like Egypt, Jordan also has one comprehensive environmental legal instrument, that is Law of Protection of the Environment No. 12, 1995. The main content of the Jordanian Law is aimed at establishing an environmental administration in Jordan. According to the Jordanian Law, responsibility for the protection of the environment is not vested in a specific Ministry, but is a joint, yet separated responsibility of the government divided among the different ministries. In order to coordinate the functions of the relevant ministries associated with the protection of the environment, the Law establishes two administrative institutions, the Protection of the Environment Council, chaired by the Minister of the Municipal and Rural Affairs, and the General Corporation for Protection of the Environment, subject to the Council.

The research indicates, along its review of the selected topics of environmental legislation, that all three national environmental administrations mentioned above suffer from a lack of an efficient concentration of governmental legislative and enforcement powers concerning the treatment of environmental issues. The existing division of "environmental powers" create parallel authoritative powers and excess bureaucratic processes instead of capacity for rapid responses to environmental issues, and lead to

conflicting sets of interests among ministries regarding the promotion and legal certification of projects such as are likely to develop under rapid economic development as envisaged under a Euro-Mediterranean free trade zone.

2. Non-Sectoral Environmental Legislation

2a. Integrated Pollution Prevention and Control (IPPC)

Different approaches to controlling emissions into the air, water or soil separately may encourage the shifting of pollution between the various environmental media (air, water or soil) rather than protecting the environment as a whole due to the issuance of separate permits by distinct administrative authorities.

In the EU, the Integrated Pollution Prevention and Control (IPPC) scheme, as set by Council Directive 96/61/EC, is designed to co-ordinate the authorisation procedures and conditions for environmental permits mentioned above between competent authorities by ensuring that such authorities may grant a permit only when integrated protection measures for air, water and land have been put in place. The core principle states that Member States have to ensure that the conditions of and the procedure for the grant of the permit are fully coordinated *where more than one competent authority is involved* in order to guarantee an effective integrated approach by all authorities competent for this procedure. All permits must contain arrangements made for air, water and land protection including emission limit values for pollutants and operating measures relating to unique conditions such as malfunctions and termination of operations.

It is important to note that the Community IPPC requirements concentrate on the traditional, heavy industry, and not on small and medium sized enterprises ('SMEs'), which have the main impact on the state of the environment, both in Europe, and even more so, in the countries of the southern Mediterranean. It is highly recommended that the IPPC scheme shall be extended within each particular legal framework to include SMEs, in order to fully exploit the potential of the IPPC scheme, whether it be on a national, regional or the international level.

A legal gap exists between EU regulation and environmental legislation on the matter in Egypt, Israel and Jordan. On the national level Egypt and Jordan have no obligations under the current law to concentrate the environmental permits under one administration. The environmental administrations in Jordan and Egypt function on the basis of coordination with every ministry and authority separately, a fact that makes even the potential establishment of an IPPC scheme in these countries problematic. In Israel, although the government possesses a potential regarding pollution prevention via building permits and business permits issued by the Local Authorities according to the Planning and Building Law (1965), and the Licensing of Businesses Law (1968), reality is not so bright. Corruption within local authorities is commonplace, as is abuse of administrative power in order to circumvent regulation designed to ensure sustainable development.

On the international level their is no demand within the existing environmental legislation in any of the three countries to take into consideration transboundary effects while issuing building permits or business permits, a fact which can contribute to the establishment of industries possessing potential negative environmental impacts upon a neighbouring country, within industrial parks situated along the borders, as might be the case between Israel and the Palestinian Authority. Some aspects of such issues are partially addressed within the Israeli-Palestinian and Israeli-Jordanian peace agreements, but do not find expression within national regulation.

2b. Access to Environmental Information

The freedom to access environmental information is one of the most crucial principles for achieving proper protection of the environment and ensuring sustainable development. It has also been central to elevation of trade-environment relations onto public policy agendas. In the EU, Directive 90/313 on Access to Environmental Information aims at ensuring freedom of access to and dissemination of information on the environment held by public authorities including, granting a right to both citizens from within and outside the Community to obtain the relevant information, without discrimination. The Directive defines the term "environmental information" in a broad manner to include all forms of available information (written,

visual, aural or data-base form) on the state of every aspect of the biosphere whether it be water, air, soil, fauna or flora possessed by public authorities. Still, the Directive enables a public authority to exclude the release of information which might impair commercial and industrial confidentiality, as to be determined on a case by case basis, by the relevant public authority, an exclusion which limits the ability of an interested party to obtain appropriate environmental information relating to illegal discharges by private undertakings.

In comparison to the EU legislation concerning access to environmental information the Israeli legislation on the matter is a result of an intensive legislative process on the issue which lasted more than four years, and is a modern piece of legislation fully compatible and relatively advanced to the EU legislation. For example, Article 9 of the Israeli Freedom of Information Law, 1998, explicitly determines that information concerning the discharge of substances released to the environment in any manner (spilling, dumping etc.) or test results of noise, odour or radiation levels, not conducted within a private territory, must be offered upon demand by the Public Authority and cannot be rejected on the basis of commercial or professional secrets as suggested by Directive 90/313 mentioned above.

Egypt and Jordan, on the other hand, state no clear definition or declaration regarding the elementary and independent legal right of citizens to access environmental information, nor do they set an explicit obligation upon the administrative authorities to publish official reports prepared for the public, regarding the state of the environment. Moreover, even environmental procedures associated by definition with the release of environmental information such as the environmental impact assessment procedures, do not grant the public or the affected individual explicitly the right to access the relevant information contained therein.

The need for international dissemination of environmental information is essential yet more problematic on the international level, and is closely linked to the topic of Environmental Impact Assessments (EIA), discussed below. Since Egypt, Israel and Jordan, share territories, which constitute one geo-physical unit, the need to notify on an international level the anticipated environmental impacts of different activities conducted within each territory is self-evident. Yet, unlike the emerging trend to encourage international access and dissemination of environmental information, as recently included in the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, done at Aarhus, Denmark, on 25 June 1998, no such obligations exist within the current legal frameworks of Egypt, Israel and Jordan.

2c. *Environmental Impact Assessments*

The EU views the Environmental Impact Assessment (EIA) procedure as a primary policy oriented legal instrument for the promotion of sustainable development within the EU. In order to advance the application of EIA procedures the EU legislated Council Directive 85/337/EEC, which elaborated a list of 35 types of projects subject to mandatory and semi-voluntary Environmental Impact Assessment operation. Moreover, the community does not leave extra space for the discretion of the planning institutions within its members' administrations.

There is a considerable legal gap in terms of EIA obligations between the EU and Egypt, Israel and Jordan, especially in relation to international norms regarding notification and cooperation. In comparison to the EU legislation on the matter, on a national level, Egypt seems to, have an advanced piece of legislation in the form of it 1995 Executive Regulations, which is comparable Council Directive 85/337/EEC. This legislation delineates in detail who are the competent authorities and what are their respective roles in relation to each specific topic mentioned. Similarly, the Egyptian regulations distinguish between establishments that demand a full EIA study, projects obligated to be screened for major environmental impacts with minor environmental impacts and establishments/projects which maybe approved based on fundamental information only.

Unlike the Egyptian legislation, the Israeli regulations on the matter are incompatible with the EU relevant legislation. It lists only four cases, airports, ports, power plants and toxic waste sites, which are obliged to follow a mandatory EIA procedure, while leaving the all other projects are at the sole discretion of the District Planning Commissions. The Jordanian Law of Protection of the Environment No. 12 (1995), makes reference to the need for EIAs, but has no specific provisions concerning which

type of projects demand such an assessment and/or the proper administrative procedures for carrying out one. It should also be noted that in all countries, especially the southern Mediterranean countries studied, but also in EU countries, enforcement of EIA legislation and follow up is notoriously weak. This also needs to be taken into consideration in evaluations, in addition to the question of the mere presence of logical and comprehensive regulation. Such a detailed evaluation of this issue is beyond the scope of this study, however.

An additional component of the EU's Directive on EIAs is reflected in the positive attitude towards the legal right to public access to environmental information contained in an EIA. No such specific legal obligation/right exists in Egyptian, Israeli or Jordanian environmental legislation. The EU obligates its members to co-operate not just on the individual national level of each member country but also on the international arena according to the requirements set up by the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo convention). The Espoo convention, ratified by the EU on 24.05.1997, obligates each party to set up procedures for international cooperation regarding environmental information contained in EIA within a member country in terms of actions which might have significant adverse impact on the state of the environment of another country, party to the Espoo convention. The legal right to access the relevant information mentioned above is to be granted to decision-makers and the public within each party to the Espoo convention. Following Espoo Convention requirements, Council Directive 85/337/EEC specifically grants the public and authorities of member states within the EU an opportunity, before consent for certain projects is granted, to enter into a consultation process by forwarding their opinion to the competent authority in the member state in whose territory the project is intended to be carried out. The relevant authority must take into account the results of these consultations in the development consent procedure.

In contrast to the obligation within the EU to cooperate on the international level in relation to EIA process findings which might result in transboundary effects, no such requirement exists in the Egyptian, Israeli or Jordanian legislation on the matter. The lack of a mandatory requirements in the legal system mentioned above to disseminate or allow an affected state to collect the relevant environmental information contained in an EIA from its neighbour country, exposes the region in general, and each country in particular, to negative environmental impacts resulting from activities conducted legally within neighbouring countries.

3. Issue-Specific Pollution Control Legislation

3a. Water Pollution Control

There are several differences in the emphasis placed with water pollution regulation by European Union and southern Mediterranean countries, which apparently stem from geophysical differences between the regions. European Union legislation concerning water pollution control, for instance, gives attention to topics such as fish water and shellfish water standards, which are of minor importance in the Middle East, while the Middle East water legislation concentrates on water quality issues such as setting standards for treated sewage water intended for agricultural or industrial use, as shall be further explained.

In Egypt, two main ministries regulate water treatment and pollution, that is the Ministry of Housing, New Communities and Public Utilities (MHUC) which functions as the parent ministry for the sector with broad responsibilities including the formulation of sector guidelines and water tariffs, and the Ministry of Public Works and Water Resources (MPWR) which controls pollution and manages fresh water resources on a national scale. Law 93/1962 (Decree 649/1962) provides standards of discharging polluted/contaminated wastewater into sewer and sewer connection, to be enforced by the MHUC, regarding a limited number of establishments including industries involved with food processing, chemicals, textiles and iron and steel mills. The Law is not enforced vis-a-vis state-owned industrial facilities, which constitute a large share of industrial activity in the country. Chapter 6 of Decree 649/1962 lists effluent standards for licensed discharge into public sewers, where violations can result in fines, the carriage of abatement measures administratively at the expense of the violator, the cancel of the license, or both. Law 48/1982 (Decree 8/1983) deals with the protection of the Nile and the other

fresh water bodies from pollution, providing standards for wastewater discharged into these waterways from industrial, agricultural and municipal sources. Section 6 of Decree 8/1983, implementing Law 48, sets different types of standards for wastewater discharges. Various articles thereof set ambient water quality standards for potable water sources, effluent standards for drainage water and for treated industrial wastewater to be discharged into potable and non-potable surface waters and groundwater.

The MPWR is partly responsible for enforcement. Legal police power was conferred on MPWR against violators, and the authority to issue licenses for discharge into fresh waterways. The Ministry of Industry and the MHUP are responsible for enforcement on industrial facilities and municipal discharge respectively. Ministry of Health is responsible for monitoring compliance of potable water quality standards issued in 1975 and emission limitations. Again, the laws are largely unenforceable as they set high standards that do not take into consideration economic, political and socio-cultural constraints.

The Israeli Water Law, 1959, defines water pollution in the broadest possible manner. According to the Water Law, any change in a water source is prima faci pollution, therefore, prohibiting pouring of liquid, gaseous or solid substances into or near a water source. The Minister of Agriculture is empowered to publish regulations to prevent water pollution regarding the following areas: siting of potential water polluters; the use of certain products or processes including agricultural produce and the use of fertilisers and pesticides; the production, importation, distribution or sale of any product; the regulation of transport on or near a water source. In addition, the Minister of Agriculture has the right to set quality standards for all water sources, including sewage water. In addition to the Minister of Agriculture, the Water Commissioner is granted supplementary powers to prevent water pollution. The Water Commissioner can require the preparation of a sewage plan in case an enterprise discharges sewage from its premises. The plan might include effluent quality levels to be achieved and a time schedule for achievement. Furthermore, the Commissioner may require a polluting factory to pre-treat or use certain processes to improve the quality of its sewage. Despite the broad powers granted by the Law, however, the minister has never published water quality standards, effluent standards or emission standards, for any source of water, nor has s/he established criteria for siting of industry near or above a water source.

In Jordan, two main governmental branches associated with water supply and protection, the Water Authority and the Jordan Valley Authority, currently grouped together, are subordinated and supervised by the Ministry of Water and Irrigation. The Water Authority Law assigns to the Authority the responsibility to protect the water resources from pollution and administer water and public sewage projects including collection and treatment. The Environment Law gives the Environmental Corporation, in coordination with the concerned authority, the power to enforce water regulation through use of different penalties ranging from fines to imprisonment. Other water legislation, including the Ministry of Water and Irrigation By-law (By-law 54, 1992) and the Jordan Valley Authority Law of 1988, only declare a general prohibition on the disposal of any material, harmful to the health of the environment, to a water source or to discharge any pollutant or harmful material into the marine environment, without offering any clear definitions, in the form of quality or emission standards of list of materials, which clearly define the terms ‘harmful material’ or ‘harmful to the health of the environment’. No comprehensive Jordanian water regulation exists which coordinates and/or further elaborates all the laws, by-laws and regulations related to water in Jordan.

European legislation regarding fresh water protection is better structured than that of the three southern Mediterranean countries studied in that the sectors of water protected by the law were coupled with a legal technique of setting prohibitions on the discharge of pollutants to the water on a “list basis”. The European legislation sets quality standards and emission standards in relation to surface water including drinking water, bathing water and ground water. In addition, the European legislation approaches specifically the issue of dangerous substances while eliminating their discharge to either surface water or ground water. European legislation clearly defines, according to a technical basis, lists of substances for which discharge into water sources is either prohibited or restricted to a certain level before discharge, within the limits set by each member country.

In comparing European water legislation with that of the Mediterranean countries, two major negative legal gaps of relevance to this study are obvious. Firstly, unlike the European water legislation, legislation in the southern Mediterranean countries examined herein does not set standards for industrial sewage. For

example, Israel has no primary legislation in the form of Acts or Laws, or secondary legislation in the form of regulations regarding industrial sewage standards. The only piece of legislation, which administers this crucial matter, is a Municipal Act from 1981 to be adopted on a voluntary basis by the Local Authorities. Likewise, in Egypt, no provision was made regarding industrial waste either within Law 39/1962 providing standards for the discharge of polluted/contaminated waste water into the sewage, or by the Ministry of Housing, New Communities and Public Utilities responsible for the implementation of the Law.

Secondly, the administrative structure regulating water supply, control and protection is scattered among a number of governmental organs inviting inefficiency and conflicts of interest. For example, in Israel three ministries, the Ministry of Environment, Ministry of Agriculture and Ministry of Health are in charge of overall water policy, in addition to other governmental agencies such as the Commissioner of Water, local or regional authorities and regional water suppliers. Likewise, in Egypt not less than a dozen ministries and related governmental branches including the Ministry of Housing, New Communities and Public Utilities, Ministry of Finance, Ministry of Planning, and the State Ministry of Environmental Affairs represented by the Egyptian Environmental Affairs Agency, are responsible for the over all control of water in Egypt. The situation in Jordan is similarly complex and inefficient.

3b. Solid Waste Treatment

The most unique feature of EU environmental legislation regarding waste treatment and pollution control is exhibited by framework Directive 75/442 on waste which contains the general waste management principles for the EU. Member states are encouraged to prevent or reduce waste production at the source; to adopt means of recycling, reuse, or any other process with a view to extract secondary raw-materials; and to use waste as a source of energy. Such a set of principles does not exist within any environmental legal framework of the three southern Euro-Med countries examined in this research, and can lead to numerous conflicts, especially under an open trade regime, as shall be discussed later.

The EU has also elaborated an advanced approach to deal with Hazardous Waste as exhibited in Council Directive 91/681 listing different wastes and subjecting them to specific legal requirements based on their hazardous nature. The requirements include the prohibition on mixing different categories of hazardous wastes, and obligations for inspection, record keeping and provision of updated information regarding management of hazardous waste within each member state. The Council has also adopted Decision 94/904 in order to distinguish more clearly between hazardous waste and regular waste based on its dangerous or toxic properties, as regulated in Annex III of Council Directive 91/689, by listing Hazardous Wastes presumed to possess hazardous properties mentioned in Annex III. Moreover, the EU has extended its waste policy in great detail regarding topics such as incineration of waste, whether it is hazardous or non-hazardous, from a municipal waste site or from a hazardous waste site. The EU has also specified sectors of waste of particular importance such as waste oils and batteries, subjecting them to a specific regulation by the law.

The EU declares a clear policy prohibiting to the extent possible, the treatment of waste by disposing in a landfill. For example, in addition to dangerous wastes, used tires and infectious hospital or clinical wastes are excluded from disposal in landfills. In addition, specific permit procedures including hydro and geological surveys are demanded in order to operate landfill site.[28] Finally, targets are set for the reduction of biodegradable municipal wastes, leading to the predicted reduction of such wastes by 75% of the total amount by weight in the year 2010 compared to1993 levels. The EU also gives high priority for the prevention and recycling of packaging wastes aiming at the reduction of packaging waste, within its member states, by recovering at least 50% or recycling 25% of the packaging wastes, no later than 5 years from the implementation date, 30 June 1996,of the directive.

In comparison to the EU, the Egyptian, Israeli and Jordanian environmental legislation treatment of waste follows a relatively narrow basis of categorisation. For example Israeli, Egyptian and Jordanian legislation distinguish between "regular" waste and hazardous waste on a national level, as well as on an international

[28] Moreover, the operation of landfill municipal sites demands a financial security by the applicant coupled with a future plan for the closure off the site where the operator remains responsible for the state of the environment after the termination of the site operation previously mentioned, a unique feature even within the EU environmental legislation.

level, in accordance with the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, which all three countries ratified. However, relatively little legislation pertaining to additional aspects of waste treatment such as production, separation, collection, disposal and litter solid waste, and none with an over-all approach distinguishing, for example, between industrial and household waste exists.

The general environmental administrative structures in Egypt, Israel and Jordan are associated with the legal powers vested in the Local Authorities whether they be municipalities or regional governments, to legislate relevant by-laws and enforce the national legislation on the matter. For example in Egypt, Law 38 of 1967 (amended by Law 31 of 1976 subjected under the Ministry of Housing and Communities) and Article 37 of Law 4/1994, regulate collection and disposal of waste from houses, public places, commercial and industrial areas, forbids disposal of garbage in any place not specified by the local council, and prohibit dumping, treating, or burning of solid waste except in places specially designated for such purposes by a municipal authority. As for hazardous wastes, Article 25 of Decree 338/1995 requires a license for generation, collection, storage, transport, treatment, and disposal of hazardous substances and wastes. Handling of regulated hazardous substances or waste without a license or violation of a license is subject to sanctions in the form of fines and imprisonment.

The Jordanian Law for the Environment refers to waste treatment in the relatively narrow aspect of hazardous waste treatment. The Law obligates the Corporation to control the disposal of 'dangerous waste' within the Jordanian territory, without setting any guidelines to define proper disposal. On the international level, like in the case of Egypt following the "Total Ban" approach, the Corporation is obligated to prevent the entry of dangerous wastes and their disposal in Jordan. Despite the primary legislative effort conducted by both Egypt and Jordan to regulate waste and hazardous waste as mentioned above, currently, to the best knowledge of the author, no legislation concerning recycling exists in both countries.

Israel has no legislation requiring separation or reduction in quantity of solid waste in the home or business. It does have legislation requiring proper storage facilities for solid waste disposal at the home and on business premises. The regulations for such facilities are bound under the Planning and Building Law, 1965, and the Licensing of Businesses Law, 1968. Each Local Authority is legally responsible for the collection of solid waste in its territory, The common legal mechanism for controlling solid waste disposal in Israel, is through the promulgation of individual local by-laws according to the powers granted to the Local Authority by statutes such as the Municipalities Ordinance (New Version).

In regard to the general public commitment to keep the environment clean the Maintenance of Cleanliness Law, 1984, the Law prohibits litter, both on private and public property, by making it a crime to dump litter, building waste, or abandoned vehicles anywhere. As far as solid waste disposal is considered, the law distinguishes between normal waste still mainly disposed in landfills operated by local authorities and municipalities, hazardous wastes, including used oil and batteries to be disposed in a specific hazardous waste disposal facility, a problematic solution in its own right, and waste from medical institutions controlled under the Public Health (Treatment of Waste in Medical Institutions) Regulations, 1997.

The negative environmental impact resulting from the lack of a general legal framework for the treatment of waste, equivalent to Directive 75/442 mentioned above, can be exemplified by looking at the case of used oil. The Prevention of Environmental Nuisances (Used Oil) Regulations, 1993, are to aimed at ensuring that waste oils are collected and disposed of without causing damage to man and the environment. Garages and other commercial users of oil are obligated to transfer the oil to the Ramat Hovav Industrial Plant for treatment or to ship it to a recycling facility. In a situation in which a proper recycling alternative for used oil exists along with a cheaper economic alternative of transporting the waste to an official dumping site for the waste, the law does not demand the waste to be shipped to the most environmental friendly alternative. Thus, even assuming legal waste disposal by industries (an assumption which is very far from current reality), there are no legal obligations to offset economic incentives which promote the environmentally less desirable options.

The most notable example of the vast difference between EU and southern Mediterranean waste legislation in the author's opinion, relates to the issue of recycling. As was mentioned above, the EU gives high priority

to the prevention and recycling of packaging wastes aiming at the reduction of packaging waste, within its member states, setting high targets and relatively short time-frames for achieving these targets. Neither Egypt nor Jordan maintain legal obligations regarding recycling. Israel, has recently passed initial recycling legislation, however, it falls far short of EU obligations and has yet to be implemented. The Israeli Collection and Removal of Waste for Recycling Law, 1993, and its corresponding Collection and Removal of Waste for Recycling (Obligation for Removal of Waste for Recycling) Regulations, 1998, empower the Minister for the Environment to order *particular* local authorities to set within their jurisdictions locations for the establishment of recycling centres and apparatuses, while achieving gradual reductions in waste disposal through recycling (at least 10% until 31/12/1998; 15% until 31/12/2000; 25% until 31/12/2007). In other words, no comprehensive obligation in relation to all local authorities regarding waste recycling is set by the law, and no specific order is made in regard to packaging waste. Moreover, it must be noted that initial dates mentioned in the regulations where not achieved by chosen local authorities, and thus, currently remain a theoretical goal only

In sum, the EU legislation concerning waste is a good example of a well-planned environmental policy coupled with specific and elaborated legislation to implement the objectives set by the framework directive, while in the southern Mediterranean countries studied, there are no clear guidelines regarding the relation between the different approaches to waste, e.g. prevention vs. recycling vs. dumping. In addition, the legislation in the southern Mediterranean countries as demonstrated in the Israeli case, approaches the treatment of the waste on case to case basis by promoting use of landfills as a reasonable alternative for the treatment of wastes whether the waste be hazardous or clinical, and fails to create any logical scale of priorities regarding prevention and recycling even for sectors of wastes specifically addressed by the law, as in the case of waste oils. In addition, there is a lack of proper emission standards regarding prevention of air pollution for existing landfill sites whether they be municipal waste sites or plants.[29]

3c. Air Pollution Control

In addressing air quality, EU legislation adopts three main categories of legal instruments including ambient air standards, emission standards and product standards. The EU first sets out framework Directives 96/62/EC and 84/360 regarding the main policy-legal goals associated with ambient air quality and emission standards from industrial plants. All member states are required to develop common methods and criteria to assess ambient air quality, information that is to be made available to the public. In addition, specific action plans for zones where limit values of pollutants have been exceeded must be prepared. Emission limit values are established for a number of pollutants including soot, sulphur dioxide, nitrogen dioxide, carbon monoxide, nitrogen oxides and hydrocarbons emitted by diesel engines, emission of pollutants resulting from the incineration of waste and ozone releases in accordance with the 1985 Vienna Convention. Finally, product standards are currently set by the EU for fuel content (lead, benzene) and the production capacity of chloroflourocarbons (CFCs) and other ozone depleting chemicals.

In comparison to the EU legislation regarding air pollution as depicted above, the equivalent environmental legislation in Israel, Egypt and Jordan, is practically only concerned with the establishment of ambient air quality standards. Emission standards limiting the amount of pollutants a facility can release do not exist, nor do product standards (excluding the emission of ozone-depleting chemicals controlled indirectly on the international legal level under the 1985 Vienna Convention to which all three countries are party). In addition, requirements for reporting information through independent self-monitoring including self-inspection, reporting and improvement do not exist.

In Egypt, air quality, is a constant and severe problem in big cities such as Cairo and Alexandria and ranks high on the Egyptian environmental agenda. Authorities are obligated by the law to demand compliance within the accepted limits of air pollutants as a prerequisite for granting a permit for the establishment of a project. The relevant local administrative authorities should also ensure that the total pollution resulting from all the establishments in one area lies within the permissible limits. Still, the

[29] This situation is particularly ironic in Israel due to the fact that the country lacks space for additional landfills and is projected to consume all remaining space within the next few decades.

main default is associated with the Executive Regulations to be promulgated in order to define the operative role of the law.

Similarly to Egypt mentioned above, air quality ranks high on the Jordanian environmental agenda. The Jordanian Law of Protection of the Environment No. (12), 1995, invests additional powers granted to the Corporation to enact air pollution control measures. In controlling stationary air pollution sources, the Corporation is empowered to take actions including the promulgation of ambient air emission standards based on relevant criteria, in addition to regulating and controlling specific sectors such as the process of burning fuel or air pollution effects associated with the treatment of garbage and diffusion of organic vapours.

In the current state of the Israeli law, quality standards are the dominant component of the air pollution legislation. Prevention of Nuisances (Air Quality) Regulations, 1992, defines the permitted concentrations of 21 air pollutants including gases and particulate matter in the atmosphere. Emission standards relate to a partial list of pollutants as mentioned in The Nuisance Prevention (Emission of Particulates to the Air), Regulations, 1972, emission standards are set for the emission of particulates formed as a result of processing raw materials in a manufacturing process, with the exception of particulates created due to the process of fuel incineration. In addition, The Nuisance Prevention (Pollution of Air form Outdoors) Regulations, 1962, sets up smoke emission standards based on the colour of the fumes.[30]

In Israel, Egypt and Jordan, requirements for permits and licenses, which control activities related to construction or operation of facilities could be used as legal instruments by the local authorities in regard to emission standards of a particular construction or business permit. Still, it is important to note that an administrative claim submitted by an injured party in regard to the matter, might challenge the legal validity of such an emission standard on the basis of constituting an illegal action due to the lack of explicit authorisation.

It conclusion, Israel, Egypt and Jordan lack of a comprehensive legal framework in the form of a comprehensive "Clean Air Act" [31] in relation to emission standards on one hand, and to the current bureaucratic environmental administrations, whether they be national governmental or local authorities. Current legal frameworks in the three southern Mediterranean countries fail to effectively control emissions by industrial sources or to meet ambient standards.

4. Conclusions

Israel, Egypt and Jordan were looked at as a representative sample of Mediterranean environmental legislation. A distinct gap exists between the EU environmental legislation and that of the southern Mediterranean, both in terms of specific pollution control and broader, non-sectoral topics. The free trade programme being promoted within the Euro-Mediterranean Partnership, which seeks to establish a regional free trade zone, calls for moves towards harmonisation of economic regulation, standards and legislation regarding trade and investment, in addition to the reduction of customs duties. While economic regulations will converge, there is no incentive within the Euro-Med framework to reduce the gap between EU and southern Mediterranean environmental legislation. Indeed, without specific mechanisms or legal obligations, there exists a risk that governments could have a disincentive to raise standards in order not to burden local producers or to dissuade potential investors.

[30] Another attempt to achieve a moderate form of emission standards in Israel was conducted by a voluntary agreement signed between the Union of Industries and the Ministry for the Environment, aiming for the voluntary adoption, on a case to case basis, of the strict German TA Luft emission standards. The success of the initiative is partial and disputed among the official industry representatives and Israeli NGOs.

[31] As of present, all countries, including the EU, largely avoid air legislation which specifies implementation of specific technology standards to improve the state of the air, i.e. requiring the use of a particular type of technology for the elimination of air pollutants (scrubbers for particulate particles etc.), or the use of market incentives such as tradable pollution permits to improve the overall state of atmosphere within a particular region.

Irrespective of the intent of the government, legal gaps also provide an opportunity for private sector enterprises to exploit the weak legislation and/or lower environmental standards in order to gain potential short-term economic profits. Such exploitation may even result in the transfer of highly polluting industries from the EU to the southern Mediterranean or the encouragement of EU investment in highly polluting sectors in the south. While any predictions of the likelihood of such activities are beyond the scope of this study, it is clear that the vast differences in legal frameworks and actual legislation that would facilitate such activities are indeed present.

Other regional free trade arrangements which have, at least in part, been responsible for some upward harmonisation, including the EU itself, the North American Free Trade Agreement (NAFTA), and others have had either specific obligations included within the agreement which mandate achieving certain minimum environmental standards (and in the case of the EU implementing all EC Directives) or high levels of public pressure to raise standards as a criteria for signing the agreement. Unfortunately, within the Euro-Med Partnership neither condition is met.

The existing legal gaps are not likely to narrow significantly in the near future, that is by the year 2010 when the Free Trade Area within the Mediterranean region is planned to be fully in effect. This is presumed to be the case for a number of reasons including the infant nature of the southern Mediterranean environmental legislation, the inherent nature of legal systems to evolve in a slow pace measured in years, and the specific collective structure of the environmental authorities in which the governmental responsibilities for the protection of the environment are distributed among a large number of agencies. These realities lead this author to the conclusion that a different legal approach should be established to minimise future environmental negative impacts associated with the establishment of a FTA, as shall be proposed hereinafter.

III. Recommendations

European Union environmental regulation clearly outpaces that of the southern Mediterranean Euro-Med partners. However, a call for adoption of high EU environmental standards by southern Mediterranean countries is neither practical, nor necessarily appropriate to the physical characteristics of the eco-systems of the region. Each nation would clearly have to develop a legal structure appropriate to its specific circumstances, however, several of the southern Mediterranean countries face similar environmental and economic challenges and share similar eco-systems, thus making room for work within the Euro-Med's regional, as well as bilateral programming. What is clear at least for the countries studied, and likely for other southern Mediterranean countries, is that in most cases major restructuring of current legal structures would be necessary in addition to upgrading the legislation itself.

On the national executive level a main effort should be given to concentrate the scattered powers of the executive branch of the state, whether it be a ministry or a local authority, under the umbrella of one unified governmental-legal entity. The function of the cohesive environmental entity should be of a legislative-enforcing nature and not merely of a coordinating character, operating at the level of ministry, thus not functioning as a mediator between the conflicting and overcoming interests of different ministries.

Such restructuring would most probably mean serious alteration of structures within which governmental agencies currently work to monitor environmental protection. Euro-Med structural adjustment funds could be useful in this respect, as could other bilateral or regional Euro-Med financial and technical programmes. An active Euro-Med sponsored forum to review and address relevant legal gaps, including those within the field of environmental legislation could be developed on both bilateral and national bases. In order to ensure that the necessary upgrading of legislation takes place, such actions could be made conditions for Euro-Med trade liberalisation especially in sectors likely to have significant environmental impacts.

In addition, on the national legislative level modern legal constructions in relation to environmental civil liability, should be established, as legal liability can act as an important incentive in inducing compliance with environmental regulation. As a natural corollary to such developments, the public should be empowered to contribute to the enforcement of environmental laws through financial incentives, first and

foremost of which would be the authorising of non-governmental organisations the right of standing in national courts, or even possibly access to international tribunals designated within the framework of the Euro-Med Partnership, in order to demand the enforcement of environmental legal rights and/or compensation for lack thereof.

Finally, It must be emphasised that enforcement is the critical element in translating environmental legislation into actual environmental protection, and so, while not addressed in detail in this study, of course, in order to have genuine maximum positive impacts, Euro-Med assistance should also be dedicated for improving enforcement mechanisms within the southern Mediterranean partners.

It is assumed, based on the current development of the Euro-Med Partnership in its first four years that, barring a practical framework, the pace of trade liberalisation and associated reforms will outpace that of national legislative procedures needed to close the existing environmental legal gaps within the Euro-Med. This author suggests ratification of a single international legal instrument, which would contain essential legal-environmental components, but which would allow for adaptation to the appropriate legal norms of the governmental system of each specific Mediterranean country.

Rather than introduce a completely new international convention, which necessitates a long-term perspective and development of new institutions, this author suggests adding annexes to the Barcelona Convention for the protection of the Mediterranean sea against pollution, an agreement already ratified by the EU and the Mediterranean countries and possessing the proper regional character needed for resolving of environmental issues at a regional level.

The international legislation should achieve a number of objectives in the following list of priority:

One. Establishing a unified, minimum level, base-line relating to emission standards, ambient standards and treatment of the basic components of the biosphere i.e. air, soil, and water, based on the existing EU environmental legislation when applicable to the conditions of each Mediterranean country.

Two. Establishing a legal instrument aimed specifically at setting up civil liability for environmental damages which would be applicable to foreign investment operations (as presented in Annex I).

Three. Establishing a common regional mechanism for cooperation on transboundary environmental effects through the dissemination of environmental information, and information contained in individual national EIA procedures in particular, through ratification the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo convention) or a convention similar to that of the Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (Aarhus Convention), or preferably adopting legal instruments tailored for the regional requirements via the Barcelona Convention.

As stated, the process of upgrading legislation is often a long, piecemeal process, but one that must be initiated immediately in order that countries not suffer unduly from unsustainable economic activities which could result from an unregulated free trade regime. It is the hope of this author to present a practical and relatively comprehensive framework within which to undertake such a process.

Annex I. Establishment of an International Legal Framework for Civil Liability for Environmental Damages within the Euro-Med Partnership

The concept of environmental civil liability is relatively new to the legal arena in general, and to the international law sphere in particular. Traditional common law tort law finds civil liability for environmental damage an exception to the classic common law approach towards civil liability for damages, offering the injured party legal remedies in the form of compensation or court injunctions. A key component lies in a modern legal approach towards enforcement which strengthens the pressure of the law by vesting some of the powers of the executive branch in the hands of the public. In a sense, when a polluting party, being an industry or a private person, is sued and must pay proper compensation for damage caused, environmental costs are internalised. Regarding the specific issue of the MFTZ initiative, and assuming the worse case scenario of a rise in polluting industries in the southern Mediterranean countries which tend to have lower environmental standards, an effort to legally enable the public via the injured party, to claim sufficient compensation for damage caused could deter potentially environmentally harmful investments.

In order to relate to the legal model offered by the author for the treatment of civil liability for environmental damages within the Euro-Med free trade zone initiative, a brief background regarding the relevant legal elements associated with the solution is necessary. Unlike the classical damage which is usually a finite act or incident, measurable in terms of monetary compensation, environmental damage is frequently difficult or impossible to measure. In addition, environmental damage differs from the classical situation, in that the party responsible for the actions resulting in damage cannot always be clearly identified nor can the causal link between the action and the damage be established with reasonable certainty. Last but not least, unlike classical damage cases in which the injured party involved is usually aware of his or her legal rights to sue the damaging party, in cases of environmental damage there may not be a specific injured party, but a rather the injury may be to public resources, the general population and/or future generations.

Legal systems confronted by the challenges mentioned above find different mechanisms to accommodate the unique nature of environmental damage mentioned above, by allowing injured parties to receive remedies, whether in the form of injunctions issued by courts or monitory compensation via different legal constructions. For example, some legal systems create conditions to ease the ability of a party to receive remedies by creating legal presumptions concerning the liability of a party involved in environmental damage, which shift the classical burden of proof from the injured party, the plaintiff, to the party charged with causing the damage, the defendant. A problem with different legal mechanisms offered to treat environmental damage is their partial approach and solutions to the concept of environmental damage. For example, the German Law on Environmental Liability 1990 provides a comprehensive system of strict liability but only for the operation of industrial facilities which are considered a risk to the environment, mainly heavy industry related enterprises and not small and medium enterprises which effect the environment the most. In addition, environmental liability schemes are even further complicated when being applied in the field of international law.

a. The guide line – legal certainty:

According to this author the most important element within any solution offered for the proper treatment of environmental damages within the international arena, should be the possibility to offer legal certainty for any party involved in an international transaction. In the case of the Euro-Med Free Trade Zone, the parties are assumed to be largely European investors and the public of the southern Mediterranean countries. In order to receive legal certainty within a given transaction, each party involved should be able to clearly recognise the three branches of the state supervising transactions. In other words, any party should be aware and notified as clearly as possible as to what the law demands. Any involved party should also be able to identify clearly the administrative authority in charge of the relevant actions while being able to bring claims concerning improper use of an authoritative power before the courts or an equivalent dispute settlement mechanism to be set by the law.

This paper proposes to establish elements of the three classical branches of the State, that is, legislative, the Judicial and the Executive, on the international level within the Euro-Med framework. As was mentioned above, copying existing legal models from the national to the international level can be misleading and unnecessary. Therefore, a legal scheme is proposed which differs from the existing common approach to environmental civil liability on the national level in order to give investors optimal certainty concerning their responsibilities and to achieve legal certainty and cooperation from the private sector in protecting the environment.

b. The Scheme

The scheme presented herein is a balanced system achieved by a trade-off between the financial sector represented mainly by the banks and insurance companies, and the environment as represented by the injured parties and members of the public, e.g. NGOs. Within the trade-off, measure effort is given to shift the balance of the existing legal framework from offering compensation for environmental damage, to promotion of preventive measures aimed at eliminating pollution at the source. In addition, the scheme offers a shift of balance from responsibility for environmental damages based on the creation of a link between the damage and the damaging party by offering investor insurance against environmental suits unless acting intentionally or with gross negligence against the environment. On the other hand, the environment shall receive additional protection by enlarging the scope of jurisdiction in relation to environmental damages by enabling NGOs to bring claims before qualified international courts/tribunals, based on a personal basis according to the damaging party citizenship, domicile or main centre of activities.

Remedying environmental damages would be conducted through a joint compensation system, in which an investor or a class of investors will be charged on a permanent basis to set aside a percentage of their investment and/or annual profits to a Euro-Mediterranean Compensation Fund which shall be used either for investment in preventive measures or for compensation to injured parties for resulting environmental damages. Above the insurance level set by the fund, the investor shall be obligated to insure himself to a level which shall be set by a specific Euro-Med body created to administer the fund, based on its assessment of the potential risks to the environment associated with the investors actions. Beyond the protection level offered by the Fund coupled with the insurance, the investor shall be responsible for environmental damages related to his actions on a fault basis only. The investor shall not be responsible to compensate for environmental damages upon proving s/he acted upon reasonable scientific data and implemented the best available technology at the time. In case of negligence, the investor shall not be covered at all by the Fund (or by its insurance company) and can be sued directly by members of the public.

Under such as system, if, for example, environmental damage was caused in a southern Mediterranean country due to the criminal negligence of a European based company (or the opposite), the southern Mediterranean citizen, being either an affected party or an NGO, would have a legal choice to sue the company for the environmental damages either in the country in which the damage took place, in the home country of the investment, or to bring its claim before a dispute settlement mechanism to be agreed upon in the protocol. An additional option of an international court, such as the European Court of Justice, acting as appellate jurisdiction over the dispute settlement mechanism decisions could also be a possibility.

The proposed scheme raises questions of national sovereignty and jurisdiction, which have been further developed in other works. It is this author's opinion, however, that such a regional liability scheme offers at least one concrete legal instrument which could help bridge environmental legal gaps existing amongst Euro-Med partner countries.

Environmental Impacts of a Euro-Mediterranean Free Trade Zone: Conclusions and Recommendations

1. SUMMARY AND CONCLUSIONS

All of the studies presented herein indicate that the Euro-Med's trade liberalisation programme is likely to exacerbate current environmental trends in the region, both positive and negative. Overall, there is little evidence that the development currently being promoted within the Euro-Med Partnership will be sustainable. The bulk of the environmental and social impacts will be felt by the southern Mediterranean partner countries (MPCs) due to the imbalance in terms of the scale of economies and trade between the them and the European Union and due to the relative lack of institutional, regulatory and infrastructure capacity within the MPCs. As the EU is a major trading partner of almost all of the MPCs, the Euro-Med trade liberalisation programme represents a major restructuring of the MPC economies, and thus its impacts are of a potentially large scale. Given such scenarios and given the already serious environmental problems facing the southern Mediterranean, especially in areas relating to use of scarce water resources, one would hope for a concerted effort within the Euro-Med Partnership to anticipate and address environmental issues. Unfortunately, at least four and a half years into the Partnership, relatively little is being done to this affect.

General Trends - Overall Increases in Resource Consumption

Exact economic and environmental implications of the Euro-Mediterranean Partnership are difficult to measure due to the overlapping of its policy prescriptions with those of other bodies and initiatives, such as those of the World Trade Organisation, the Bretton-Woods organisations. Certain trends to which the Euro-Med trade programme is likely to contribute, however, have been identified. Consumption of resources, especially fresh water, coastal/marine resources, and mineral resources is likely to rise under the regional free trade scheme, as are pressures on open land. In addition, without appropriate regulatory safeguards and specific mitigation plans, economic liberalisation is likely to increase the amount of pollution, including that to fresh water, marine resources, air, and soil, as well as the amount of solid wastes.
In some cases, such as water consumption, increases will contribute to exploitation of natural resources beyond the carrying capacity of the local environment, while in others, such as solid and hazardous waste production, the increases will serve as additional burdens to already overwhelmed infrastructure in many of the MPCs.

Increased manufacturing production, intensified agricultural production, and a "westernisation" of consumer habits are all projected to result from increased European investment and from reductions in customs duties on industrial inputs as well as on domestic consumer goods. Such changes will mean higher rates of energy and water consumption and production of industrial wastes. While efficiency rates may also improve, the overall effect of these increases could be a serious burden on the region's environment. Several studies have indicated that trade liberalisation and structural adjustment by developing countries leads to intensified production in heavily polluting extractive industries, such as those in petrochemicals and minerals, due both to already existing infrastructure and the increased need for foreign currency. The case study of mineral mining in Jordan, seems to reaffirm such assertions, as this sector has been the primary recipient of Euro-Med loans, as well as European investment. The trend of refining and processing of the natural resources in the Mediterranean countries themselves will continue to increase, as MPCs attempt to benefit from the additional value-added. This will translate into corresponding a rise in demands on energy, water, and open land for storage facilities.

Changes in consumer habits due to reduced prices on European luxury goods such as cars and electrical appliances will contribute to higher energy consumption (and therefore air pollution), solid waste production and possibly also water consumption, especially if mitigation measures such as waste treatment centres, recycling programmes, public transportation schemes, and proper pricing of water and energy are not initiated. The trade-oriented economic policies will augment existing trends towards urbanisation, which

mean additional burdens on urban infrastructure, both in the MPCs and possibly in Europe due to migration. As most trade between Europe and the MPCs is transported by ship, increases in trade will mean additional use of already over-burdened ports and construction of new ports. A trend in this direction is already underway. This translates into further pressures on both coastal and marine resources and increased risk of marine accidents. In addition, some countries in the Euro-Med region may serve as sub-regional economic "hubs", and thus, could also witness additional pressures on road transportation systems, if efficient alternative transport (e.g. rail) is not established.

New investment in MPCs may bring with it more modern technologies which would increase efficiency and generally have a positive environmental effect, however, such an outcome is not a given. In the words of a World Bank study on the Middle East and North Africa region, "investments will yield few returns if the right incentives and institutions are not in place." (World Bank, 1994b). Currently, for instance, much of the environmentally friendly technology is too expensive for wide-spread use among most small and medium sized enterprises, which represent the overwhelming majority of total production capacity in many MPCs. Furthermore, there also exists a potential that, instead of promoting acquisition of new technologies, the Euro-Med agreements will merely facilitate the transfer of outdated equipment and technologies from the EU to MPCs. In terms of environmental impact, while older European equipment might be more efficient than that currently in use in many of the MPCs, if it comes in addition to, instead of in place of current technologies, it will only add to environmental stress. In addition, such a transfer of older technologies would perpetuate MPC lack of competitiveness in world markets and an unnecessary waste of natural resources.

Agriculture

Although the Euro-Med Partnership does not call for free trade in agricultural goods, it does call for "trade liberalisation" of agriculture, and some degree of such liberalisation is being included into most of the bilateral association agreements. In addition, a general shift towards export economies within the MPCs due to the Euro-Med process, combined with the possibility of cheaper prices for agricultural inputs (e.g. machinery, pesticides, etc.) will likely bring about a shift towards the cultivation of export oriented cash-crops in MPCs. Expanded irrigation (and thus increases in water consumption), water and soil contamination from increased use of agro-chemicals, marine pollution from runoff, and cultivation of marginal lands are all likely scenarios from such a shift. Social effects may include increased financial insecurity for rural populations due to reliance on commodity market fluctuations (especially for vegetables), increasing use of marginal land by rural populations, and increased rural exodus. The framework of Euro-Med association agreements thus far, has offered limited opportunities for agricultural exports from MPCs to the EU, with the majority in off-season production, which demands more intense cultivation methods. Thus, some opening of European markets to MPC produce might ease pressures in MPCs, however, there is a risk that, if not made conditional on environmentally sound production, such liberalisation could simply lead to overall increases in resource consumption.

As agriculture still plays a significant role in many of the southern Mediterranean economies, niche markets such as organic crops could be both economically and environmentally beneficial. The Euro-Med Partnership specifically calls for promotion of "environmentally-friendly agriculture," although little evidence of concrete steps in this direction have been identified. Currently both organic agriculture and other speciality premium markets in Europe, such as certified eco-labeled goods, are growing but are not currently exploited by MPCs, due to lack of production and marketing support systems and high premiums for the certification, which serve as market entry barriers in these countries.

Structural Adjustment and Other Reforms

The loss in state revenues in MPCs due to the removal of customs duties under Euro-Med trade agreements may affect governmental budgets dedicated to social and environmental projects, as governments are forced to reduce national expenditures. Programmes such as value-added taxes (VAT) which are supposed to compensate for lost revenues may take years to garner levels of revenues currently raised by customs. Thus, at least in the short and medium-term, a gap may develop in which government ability to invest in social support and pollution mitigation measures and to monitor and enforce environmental regulation is reduced exactly at a time when social and environmental pressures are mounting.

Pricing of goods to include their environmental costs is necessary if economic development in the region is to be sustainable. In this regard, efforts to remove subsidies, such as those for water, fossil fuels, fertilisers and pesticides are one step in this direction which would encourage more efficient use of such inputs. Several Euro-Med partners have initiated some such steps, however, in general costs are still far from reflective of real costs. Many people in MPCs are directly dependent on subsidies for provision of basic needs, and past attempts to remove subsidies have often resulted in social suffering, and at times in rioting and other violent protest. In order to avoid such occurrences, governments will need to develop policy measures to compensate the poor, especially in rural areas, who would be negatively affected by subsidy removal and to assure them access to basic resources.

The Euro-Med programme is also reinforcing trends of privatisation of government-owned companies in MPCs. Such action could improve efficiency rates for resource use. Privatisation of utilities, however, will also reduce national control over resources and, as in the case of subsidy removal, could threaten provision of basic needs to poorer segments of the population.

Regulatory and Institutional Issues

While the Euro-Med Partnership calls for harmonised trade regulation among partner nations, it does not mandate any such efforts in terms of environmental or social regulation. The current state of environmental regulation in MPCs is insufficient to meet even current challenges, and is significantly behind that of the EU. Areas such as environmental impact assessment, pollution control, and public access to information remain undeveloped in many MPCs. Even in cases when standards are technically sufficient, they are often inadequately enforced, if at all, due to a lack of capacity and/or political will. In addition, competing investment regimes may serve as disincentives for MPCs to raise and/or enforce environmental standards and to close legal and other regulatory gaps, and thus a common Euro-Med investment framework may be in order, as would specific commitments to implement designated environmental regulatory standards.

The Euro-Med Partnership will also mean more direct impacts of EU regulation on MPC markets. Stricter environmental regulation in the EU was seen to have untended effects in production in MPCs, limiting market access and even increasing resource consumption in some cases. This has raised questions of responsibility for economic burdens incurred, and has raised suspicion of "green protectionism." No specific binding commitment exists within the Euro-Med framework, which addresses such issues, nor does one exist which guarantees nations the right to determine environmental standards based on scientific criteria, even if

The financial instruments currently in place to address environmental issues within the Euro-Med Partnership include funding for environmental projects through the MEDA programme - including the Small and Medium-term Action Plan for the Environment (SMAP) - and European Investment Bank (EIB) loans, which are offered at concessional rates for environmental projects. Environmental issues are given a relatively low priority within Euro-Med programming, and funds currently offered for such purposes, while essential, are substantially less than are necessary to address the most basic environmental problems facing the region.

The SMAP programme, while undoubtedly a positive attempt to address some of the most critical issues, suffers from severe budgetary constraints and an apparent lack of political support, which severely cripples its activities. Four and a half years into the Partnership, SMAP has yet to provide support for a single project, despite approving several submitted in 1998.

The MEDA programme has significant resources which could be dedicated towards promoting sustainability. Currently the bulk of MEDA funds are dedicated towards economic restructuring. Measures to incorporate environmental concerns into its overall funding decisions and to integrate them into its economic adjustment packages have, until now, been relatively modest. The EIB funds a number of necessary infrastructure projects, especially those related to water resources in MPCs. It also provides funding to various other undertakings with questionable or even obvious negative environmental impacts such as support for expansion of fossil fuel consumption (via support for fossil fuel based power plants),

road networks, etc. The Bank itself appears to be inadequately staffed to perform basic social and environmental assessment of its lending (even in comparison to other lending institutions of similar magnitude), and outside monitoring of its loans is nearly impossible due to its policies restricting access to relevant information.

Finally, debt owed by Mediterranean partner countries to EU countries severely constrains the MPCs' ability to address serious environmental issues. In addition, it appears that such debts are inhibiting at least some MPCs from taking on new environmental projects, for fear of further burdening national treasuries – this despite limited economic incentives (e.g. preferential lending terms for EIB loans).

In sum, it appears that, despite limited environmental assistance programming and funding, the Euro-Mediterranean Partnership's economic liberalisation programme is likely to add to environmental pressures, especially for the southern partners, at least in the short and medium term. Most of these countries are unable to cope with even present environmental burdens and are in need of significant additional policy and institutional measures, infrastructure, and technical and financial assistance in order to do so. As natural resources, especially water, are scarce in many MPCs, and many forms of wildlife dependent on sensitive arid ecosystems, even seemingly small changes in economic activity could have significant environmental impacts. At present, relatively little beyond broad statements in support of environmental goals and support of a limited number of infrastructure projects, has actually been initiated within the Euro-Med Partnership in order to ensure that environmental objectives are established and met.

2. RECOMMENDATIONS

Given the potentially serious implications of the Euro-Med's trade programme for the environment, a serious effort needs to be made to restructure the Euro-Med Partnership if it is to promote sustainable development and not simply trade per se, as its current focus does. The Partnership's structure as a comprehensive policy forum, as opposed to a narrow trade agreement provides a potential opportunity for such a refocusing. In order to assist in promotion of the sustainable development of the region within the Euro-Med framework, the study offers the following recommendations:

2.1. GENERAL

- ***Bilateral Agreements***. As most of the impacts of the Euro-Med economic policy will result from the EU non-EU relations, and less so from the South-South dynamic, it is essential that environmental concerns be considered in the negotiation and implementation of the bilateral association agreements between the EU and the southern Mediterranean partners. Efforts to address the environmental concerns should be not be left until the final stages leading up to the establishment of the regional trade zone in 2010. Amendments to the bilateral association agreements should include declarations ensuring the rights of countries to determine their own environmental standards and disallowing the use of the agreement for purposes of downward harmonisation of environmental standards. Furthermore, commitments to achieving specific environmental targets should be detailed. These targets can differ according to the needs of each country involved (see next recommendation). In addition, revision of the bilateral agreements should be allowed if significant environmental impacts are discovered following implementation.

- ***Specific Targets***. While the Euro-Med's trade programme designates specific economic and regulatory targets and schedules for achieving them, environmental and social objectives are stated only at a level of general aims. Schedules for attaining specific environmental targets (e.g. target levels for renewable energy use, water quality, phase-out of various chemicals in industrial processes, necessary environmental infrastructure etc.) should be agreed upon by member states, and appropriate levels of resources dedicated to achieving them. For bilateral agreements, these targets can differ according to specific likely environmental impacts of trade liberalisation, as well as on the needs of the individual countries, taking into consideration national development priorities such as those which countries are currently preparing within the frameworks of United Nations National Strategies for Sustainable Development.

- ***Sustainability Impact Assessments***. The European Commission committed in April, 1999 to undertake a sustainability assessment of the Euro-Mediterranean free trade zone programme, however, at the time this document is being published, one and a half years later, actual work on such a project has yet to begin. Such a sustainability assessment should be carried out immediately by an institution or institutions officially commissioned by the Euro-Med countries. The Euro-Med partners should also commit to incorporate the assessment's recommendations into Euro-Med policies. In addition to forward looking studies, retrospective assessments of Euro-Med agreements already in effect should also be undertaken to examine actual impacts. Incorporation of other studies, such as those done by the Middle East Technical Assistance Programme (METAP),the Mediterranean Commission for Sustainable Development (MCSD), and the current study offer partial insight into possible impacts, but are incomplete and lack any official or binding status within the Euro-Med Partnership.

- ***Institutional Coordination.*** A strong institution within the Euro-Med Partnership is needed to coordinate environmental programmes and policies and ensure that sustainability concerns are well integrated into overall Euro-Med policy initiatives.

- ***Environmental Screening of Official Euro-Med Finance.*** All significant financing undertaken within the framework of Euro-Med institutions (e.g. MEDA and EIB) should undergo sustainability screening, especially that promoting industrial and/or infrastructure expansion. The criteria for the screening should be clear and the results of the environmental screening should be made available to the public. For such projects which may receive funding despite expected limited unavoidable environmental damage, mandatory matching funds should be provided for necessary pollution prevention, mitigation and/or compensation measures.

- ***Capacity Building***. If balanced and integrated solutions are to be found, programmes to develop technical and professional capacity among both private sector and governmental actors are needed which would help identify and address trade-environment issues, especially in MPCs. Specific sector level programmes should be developed immediately.

- ***Multi-stakeholder Participation***. Incorporation of multiple stakeholders into the Euro-Med decision-making process should be developed and integrated throughout the various levels of Euro-Med policies and activities. Currently, efforts towards significant non-governmental participation are being developed primarily with the private sector. Participation by civil society and by local populations affected by Euro-Med policies should be developed beyond its current, largely, token levels.

- ***Priority Action***. Given the substantial on-going progress in liberalising trade, within the Euro-Med Partnership, and given that certain general trends in terms of environmental impact are evident or extremely likely, immediate action should be taken to prepare and implement basic measures to ensure environmental protection. Lack of official studies or accurate data is a serious gap in promoting, effective policies, however, they should not be an excuse for inaction.

- ***Sustainability Indicators***. A system of national and regional indicators reflecting progress in terms of sustainability which is specific to issues raised by trade liberalisation (e.g. waste transport, resource use per sector, regional fish populations, etc.) should be developed and monitored, so that member countries can evaluate and respond to social and environmental impacts of the Euro-Med trade reforms. A basis for such indicators can be those currently collected by the Blue Plan on behalf of the MCSD. Specific training programs for evaluating these indicators should be sponsored within a Euro-Med framework.

2.2. SPECIFIC POLICY INITIATIVES

- Customs and tax restructuring should reflect sustainable development priorities.
  - Specific environmentally desirable trade should be made a priority for trade liberalisation. They should also receive special economic incentives, such as exemptions from Value Added Tax (VAT) or other taxes. Such goods and services could include, *inter alia*, renewable energy technologies, pollution control equipment, and environmentally friendly agriculture.

  - In contrast, barriers which constrain environmentally or socially undesirable trade, including customs duties on scarce natural resources and usage taxes, should be allowed to continue, at least until proper technological, infrastructure, and institutional capacity is in place.

- The Polluter Pays Principle and pricing which internalises environmental costs should be integrated into national policies prior to market liberalisation, in order to prevent excessive and inefficient use of natural resource capital. Efforts to assist in the design and implementation of such acts should be part of the Euro-Med's structural adjustment programming.
  - Flat subsidies of water, electricity, fuel, pesticides should be removed or restructured into progressive subsidies, which decrease as levels of consumption rise, or which are linked to desirable environmental management.
  - Conversely, progressive tax systems which increasingly penalise for excessive use of natural resources should also be put in place.
  - Prices of water, electricity, and fuel should reflect real value, not just costs of production and transmission. Privatisation of utilities, will be insufficient in this respect.
  - Eco-taxes and other pricing instruments which levy fees to inhibit environmentally undesirable activities (e.g. emissions taxes, packaging fees, etc.) should also be enacted.
  - Revenues saved from the removal of subsidies for basic needs could be used to develop employment and social welfare in order to compensate poor populations who may be negatively affected by the increased prices following subsidy removal and privatisation.

- Integrated national and region-wide development plans should be developed by inter-ministerial committees, including environmental expertise, which map out specific short, medium and long-term sustainable development objectives and strategies for various economic sectors including: Use can be made of other similar efforts, such as those undertaken under UNEP and MCSD programmes. The resulting development strategies should be incorporated directly into Euro-Med fora and working groups and should be used as the basis for Euro-Med project funding.
  - Agricultural policy programmes which emphasises integrated pest management, water-efficient crops, and promotion of organic crop cultivation.
  - Energy promotion plans which emphasise renewable energy sources.
  - Coastal zone management, including zoning for industrial and port development, taking into consideration ecologically sensitive areas.
  - Transportation which emphasises public transport, efficient cargo transport systems, and marine transport safety precautions.
  - Marine accident prevention and region-wide emergency response programs should be strengthened.

- Euro-Med trade agreements should expand (or remove) MPC agricultural quotas to more accurately reflect peak production periods in MPC countries. Such a restructuring of the EU's agricultural policy would encourage resource efficiency in the EU while allowing economic opportunities for rural populations in MPCs, likely to otherwise suffer welfare losses from the Euro-Med agreements.

- In order to capture the market opportunities offered by eco-labeling niches and other premium markets, such as organic farming, entrepreneurs in MPCs will need assistance in terms of market specifications and contacts. They will also need technical and financial assistance in order to coordinate the necessary certification systems and to put in place necessary institutions and infrastructure (e.g. specific facilities for storage and refrigeration for organic foods).
  - Current Euro-Med programmes for assisting the private sector, especially small and medium sized enterprises, should include specific programmes to introduce and promote environmental management systems, certification schemes, and their potential market benefits.
  - Programmes to inform Mediterranean producers about proposed EU environmental regulation and methods of accommodating them should be established. Mechanisms via the WTO or other bodies are insufficient as they inform only governments, and do not attempt to offer capacity building for coping with expected regulatory changes. In addition, not all Euro-Med partners are WTO members.
  - Extension services programmes for sustainable agriculture should be introduced and promoted.

- In order to protect the Mediterranean marine environment, the Barcelona Convention and the amended forms of its associated protocols should be ratified and implemented by all Mediterranean states, as well as the European Union.

- Specific commitments to bar trade in Domestically Prohibited Goods (i.e. goods prohibited in one or more countries) should be introduced into both bilateral association agreements, and any regional Euro-Med trade agreement.

- Protected status of Multilateral Environmental Agreements (MEAs), especially vis-à-vis challenges by trade regulation, should be guaranteed within the framework of the Barcelona Process.

2.2.1. Private Sector Responsibility

- In order to encourage technology transfer, and to avoid the dumping of old technologies in southern Mediterranean countries, voluntary investment codes which commit to using best available technologies and maintaining European environmental standards should be encouraged among European investment within the Mediterranean region. Methods for possibly making such codes mandatory should be investigated.

- A common framework could be designed which establishes criteria of legal liability regarding environmental impacts for regional international investment. Official channels and institutional mechanisms for addressing grievances would need to be put in place.

2.2.2. Public Participation

- Public rights concerning access to information, right of organisation, and access to forms of redress (courts, planning commissions, etc.) should be ensured in each of the Euro-Med partners, as experience shows that public pressure is essential in promoting effective monitoring and enforcement of environmental policies.
  - Efforts should be increased to inform the interested public about programmes and activities of the Euro-Med Partnership, as currently there is little public debate on the issues. In this respect, the role of non-governmental organisations in the Euro-Med partnership should be encouraged and facilitated.
  - A process for ensuring public participation in decision-making should be established for Euro-Med sponsored projects with significant social and/or environmental impacts.

- The public itself can take initiative in terms of promoting alternative economic systems, such as responsible consumerism, support of "Fair Trade" networks, and purchasing of environmentally preferable products (e.g. eco-labeled goods, organic agriculture, etc.) originating in the Euro-Mediterranean area. In this regard, established networks already engaging in such activities in Europe have only minimal contact with southern Mediterranean producers. Such links should be developed, whether through officially sponsored Euro-Med channels, or, more practically, independently.

2.3. INSTITUTIONAL AND FINANCIAL INITIATIVES

- All significant financing undertaken within the framework of Euro-Med institutions (e.g. MEDA and EIB) should undergo sustainability screening, especially that promoting industrial and/or infrastructure expansion. For such projects which receive funding despite expected environmental damage, matching funds should be made available for necessary mitigation and/or compensation measures. Similar screening should be done for any public export subsidies or export credit offered to facilitate trade between Euro-Med countries. Such screening should be done according to clear criteria and the results of this screening should be made public.

- A clear strategy for financing in the region should be developed, based on national and local level needs assessments, taking into consideration environmental sustainability. Such a strategy should serve as the basis for allocation of Euro-Med funds, including MEDA grants and European Investment Bank lending.

- A strong institution within the Euro-Med Partnership is needed to coordinate environmental programmes and policies and ensure that sustainability concerns are well integrated into overall Euro-Med policy initiatives. The current Small and Medium Action Plan for the Environment (SMAP) is clearly insufficient and lacks both capacity and mandate to coordinate on a broad basis.

- Given the high costs of the environmental damage at stake and the potential savings proper environmental policies could affect, an increased portion of MEDA funding is warranted specifically for environmental protection from both its regional and bilateral budget envelopes. A secured minimum percentage commitment of MEDA funds for environmental protection purposes could be considered.

- Debt owed by MPCs to EU creditor countries should be forgiven or rescheduled in order that it not inhibit countries from implementing necessary environmental protection projects. Debt for Nature swaps (debt forgiveness in exchange for implementation of concrete programmes of environmental conservation) could be a valuable tool in this effort.

- The European Investment Bank should adopt environmental lending policies and standards comparable to that of Multilateral Development Banks, as it is playing a clear and significant development role in the Mediterranean region.
  - Its capacity for conducting environmental assessment should be substantially increased in terms of staff and budget.
  - Information regarding project lending should be publicly accessible and released prior to lending decisions, in order to provide an opportunity for reactions from potentially affected populations.

- Development of country-specific programmes to raise environmental legal and regulatory frameworks and harmonise standards within Euro-Med partners should be implemented.

- Technical and financial support needs to be granted to MPCs in order to develop their capacity to conduct thorough and accurate environmental impact assessments. A regional project risk assessment team could be established for regional policies and projects, or national ones with potentially large-scale impacts, but which would be beyond the capacity of some national governments to assess.

- Measures could be implemented to increase capacity of Mediterranean customs officials to identify and monitor hazardous and restricted materials.

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